APRIL, 1934

COTTON

Serving the

TEXTILE INDUSTRIES

As the YEARS Roll By
ARGUTO Rolls On

1890 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1931 1932 1933

"Smoother than Grease"

20 years without a drink –

"Outwears the Best Bronze Metal"

"ARGUTO Bushings have Outlasted 7 Bronze Bushings in the same place . . . very severe Service."

unsolicited testimonial

20 years without a drink –

ARGUTO OILLESS BEARING CO.

WAYNE JUNCTION PHILADELPHIA

YARNS

WE DON'T TELL 'EM . . . . WE SELL 'EM

WE COLOR OUR YARNS WITH DYES . . . NOT LIES

TO color fish yarns with lies seems to be "author's license", but there is no such precedent for coloring cotton yarns. The only color we use in the sale of Franklin Process yarns comes from first class dyestuffs. Nothing is intentionally misrepresented from staple to identity of spinning. Furthermore we take every practical precaution to see that nothing is *unintentionally* misrepresented. ¶ Franklin Process yarn offerings include all popular counts and qualities — natural, bleached or dyed — in any standard put-up more commonly used.

If you are not sure what yarn is best for your purpose, let us give you the benefit of our contact with a great variety of cotton yarn users. Prices, samples and delivery on request.

FRANKLIN PROCESS COMPANY

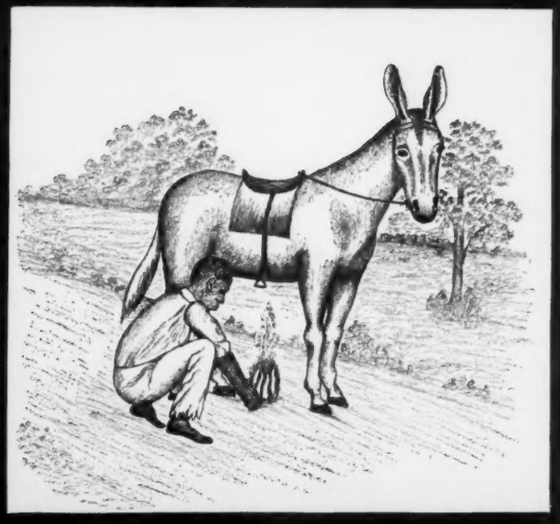
Yarn Merchants and Yarn Dyers. Also Manufacturers of Glazed Yarns and Machines for Dyeing and Bleaching Yarns in the Package Form, Cotton and Wool Raw Stock, Worsted Tops and Worsted Yarn on Jackspools, also Machines for Soaking Silk. Main Office and Plant at Providence, R. I. Branch Plants at Philadelphia, Pa., Greenville, S. C., and Chattanooga, Tenn. New York Rep., 40 Worth Street

FRANKLIN PROCESS

COTTON YARNS AND CUSTOM YARN DYEING

COTTON is published monthly by W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga. Subscription Rates, United States and Possessions, $1.00 for one year; $2.00 for three years; Canada, $1.50 per year; Foreign Countries, $2.00 per year. Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

Transportation Without a Self-Starter is like a Warp Stop Motion That



Does Not Find the Broken End

It Wastes Your Time

With Draper Sliding Bar Warp Stop Motions the first glance tells the Weaver whether the stop is from a Broken End or Something Else. With other stop motions she Has to Find Out—and THAT TAKES TIME.

Draper Sliding Bar Warp Stop Motions Point Out the Broken End. With other stop motions the Weaver Must Hunt for it—and THAT TAKES TIME.

It Takes 2 to 3 Times as Long per Broken End with other Stop Motions.

Draper Sliding Bar Warp Stop Motions save your Weaver's time, enable her to give you More Cloth with Less Effort or Run More Looms without increased Labor.

Unnecessary Labor Wastes Time. To Waste Your Weaver's Time is to Waste Your Money.

DRAPER CORPORATION

Hopedale Massachusetts

Southern Offices Atlanta Ga and Spartanburg S C

"Let's bring down those lubrication costs" Texaco engineers, working "hand in hand" with mill operators, have been able to effect notable savings in lubrication, power and maintenance costs. It is a specialized service that every mill owner will appreciate. Texaco men are trained engineers who *know* lubricants and who have had years of practical experience in the operation of textile machinery.

They have brought the selection and use of lubricants up to the status of an exact science for lowered power consumption, improved machine operation, lower lubrication costs and increased production. In this work Texaco engineers are especially well fitted to help.

We believe Texaco engineers can cooperate with you to effect the same economies. Call on a Texaco man to go over these questions of lubrication savings with you. We know you will find his services decidedly helpful.

TEXACO

REG. T. M

NRA

TEXACO LUBRICANTS

● Texaco Lubricants for the textile industry include Texaco Spindle Oils in a complete range of viscosities, Texaco Greases, specialized Texaco Lubricants for spinning frames and looms, for dye-house machinery, and a full line of Texaco Lubricants for electric motors, air compressors and power plant equipment of every type.

THE TEXAS COMPANY, 135 E. 42nd ST., N. Y. C. ★ *There is a Texaco Lubricant for every purpose*

BUTTERWORTH

It will be worth a visit to the Knitting Arts Exhibition to see this one machine alone

THE TUBE-TEX
for tubular knit goods

The TUBE-TEX extracts, processes, dries, finishes, conditions and measures tubular knit goods in flat form, all in one continuous operation, with two operators. Running speed 25 to 36 yards per minute. A third operator is required for sewing.

The TUBE-TEX lowers costs, saves power and space, eliminates much waste and shows a substantial increase in production per man per hour. An average 100-yard roll passes from soaking wet to finished state in from 3 to 5 minutes.

Gives absolute control of moisture regain

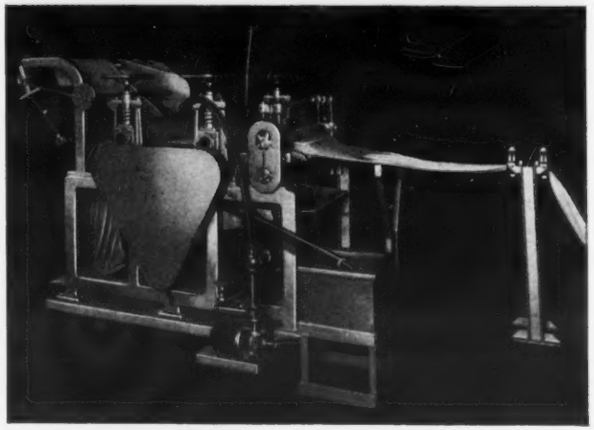
Literature on the TUBE-TEX is available from us direct, or you can obtain full information at the Knitting Arts Exhibition.

H. W. BUTTERWORTH & SONS CO., *Established 1820*
PHILADELPHIA, PA.
PLANTS *at* PHILADELPHIA *and* BETHAYRES, PA.

New England Office:
TURKS HEAD BUILDING
Providence, R. I.

Southern Office:
JOHNSTON BUILDING
Charlotte, N. C.

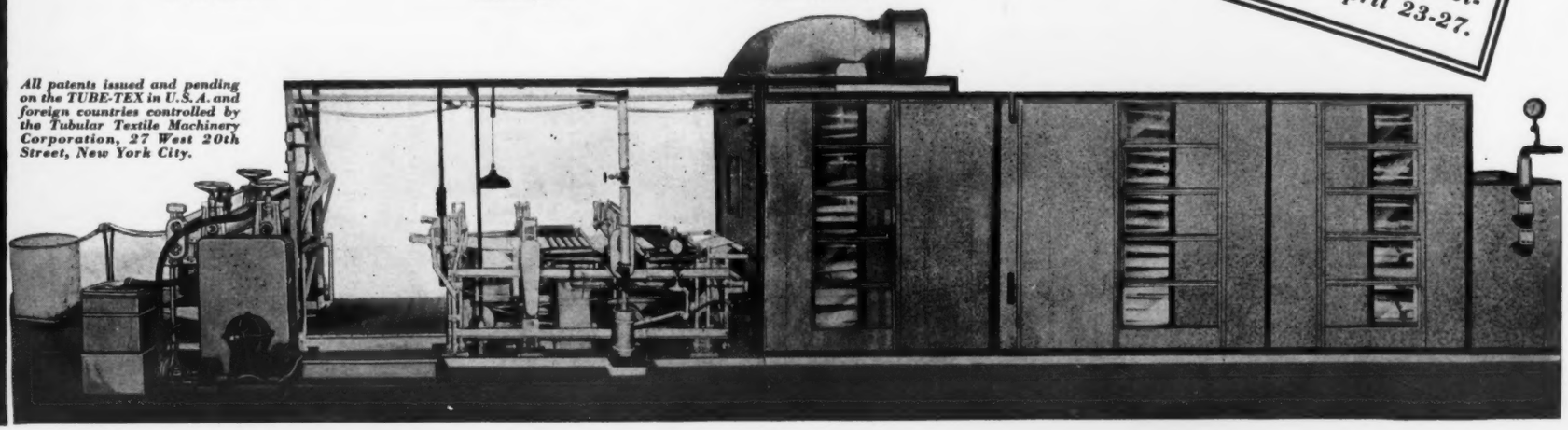
In Canada:
W. J. WESTAWAY CO.
Hamilton, Ontario



The extracting and processing unit of the TUBE-TEX. Available as a separate unit or as part of the TUBE-TEX combination shown at bottom of page. The fabric leaving this unit is flat, uniformly squeesed and ready for drying and finishing either on your present equipment or in a TUBE-TEX range.

The TUBE-TEX will be in operation at the Knitting Arts Exhibition, Spaces 60-A-A, Commercial Museum, Philadelphia, April 23-27.

All patents issued and pending on the TUBE-TEX in U. S. A. and foreign countries controlled by the Tubular Textile Machinery Corporation, 27 West 20th Street, New York City.



The Improved
LUCAS
UNDERCLEARER
ROLL

—the "last word" in an efficient underclearer roll. Light in structure and easy to handle. Catches the broken strand immediately and avoids double ends and coarse, heavy threads in the yarn. Keeps fluted rolls perfectly clean and will not let fly collect or adhere to smooth part of roll. Cleans 50% easier. Always runs absolutely true on frames. Will last the life of the steel gudgeon pins without recovering. Scores of mills state they are worth three times the price of the ordinary rolls. Send us one of your rolls and we will duplicate it for trial so you can find out for yourself why the LUCAS is known as the perfect underclearer roll.

Serving The Textile Industry for 68 Years!

Our business is founded on quality and satisfaction to our customers. It has grown with the industry and today we are still serving the same mills that were our customers in 1866. We always endeavor to see how well and not how cheap we can build our products, and no sale is complete until the customer is satisfied.

Our Bobbins are made of the best material we can buy. We use Vermont Maple, North Carolina Dogwood, Fibre from the best mills in Delaware and other products of the highest character.

May we have the opportunity of serving you? Catalogs will gladly be sent on request.

The L. M. HARTSON *Co.*

NORTH WINDHAM, CONN.

Southern Representative,
Edward F. Cook, Cook-Taylor Co.
1906 Brevard St., Charlotte, N. C.

We Manufacture:

BOBBINS. Iron, Fibre, Dogwood Heads, Maple Winders.
Enamel Bobbins.
Flyers of every description.
Cut Flyers rewired.
Spindles, Winder, Doubler and Matcher.
Tubes, and Quills, for Ribbon work.
Spooler, and Thread Winder Guides.
Fibre Washers and Mill Nuts.
Cork Strips.
Ferrules.
Flyer Supports.
Swifts, and Swift Sticks.
Risers.
Music Wire in coil and cut to order.
Wire Work of all descriptions. Lingoes.
Wood Turnings: Dogwood Blocks, Creel Buttons, and Mill Nuts.
Screw Machine Work.
Punchings of all kinds.
Enamel Guides.
Dropwires and Tips.
Bushing for Insulating Machinery.
Spinner Pulleys covered with cork.
Sliders for Dressers.

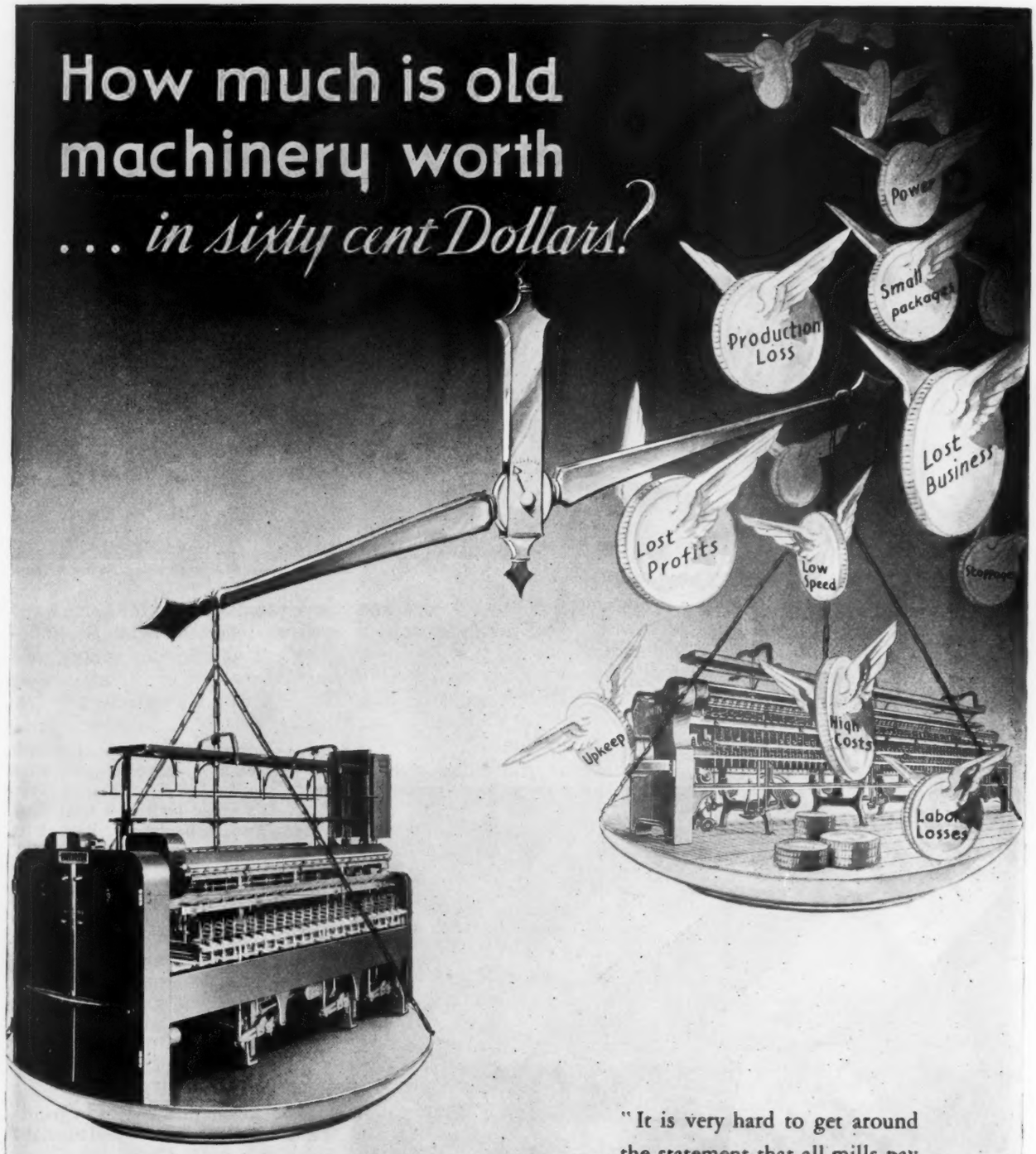
5 B Bobbins
for Atwood Spinners

Maple barrel; dogwood and fibre bottoms, slotted and drilled and glued on; fibre heads put on with drive screws.

Stainless Steel Head
Steaming Shaft Bobbins

Far superior to all metal Bobbins as with Rock Maple barrels they do not hold the heat in steaming. Three brass rivets and with and without steaming holes and with any type gudgeon desired.

How much is old machinery worth ... *in sixty cent Dollars?*



"It is very hard to get around the statement that all mills pay for modern equipment whether they purchase it or not."

(*Editorial*)

WHITIN MACHINE WORKS **WHITIN** WHITINSVILLE, MASS.

Interior view, Packard Mills, Inc., Webster, Mass.

THE UPPER VIAL contains refined linseed oil commonly used in white oil paints. This yellow color disappears when the oil is mixed with white pigments. But it is still there . . . sooner or later to appear upon your ceilings and walls!

THE SAME OIL treated by the "Rice Process" appears as shown in the lower vial. The Rice Process not only removes "yellow," but also gives Interior Barreled Sunlight its remarkable hiding power and ease of flow.

ALL white paints are nice and white when they've first been painted on your plant ceilings and walls. But how long will they stay that way? How long before they become dingy . . . turn *yellow? That's* the question!

The answer will either cost or save you money. If the paint turns yellow—reflected light is diminished, plant efficiency suffers, production costs go up. And your *only* remedy will be an expensive repaint job.

Make sure the paint you buy will remain bright and white, year after year. Specify Interior Barreled Sunlight. It's made by the noted "Rice Process" which banishes yellow at its linseed oil source.

White paint made with Rice Processed linseed oil stands little chance of becoming yellow upon your ceilings and walls. There's no yellow to come out! See explanation lower at left.

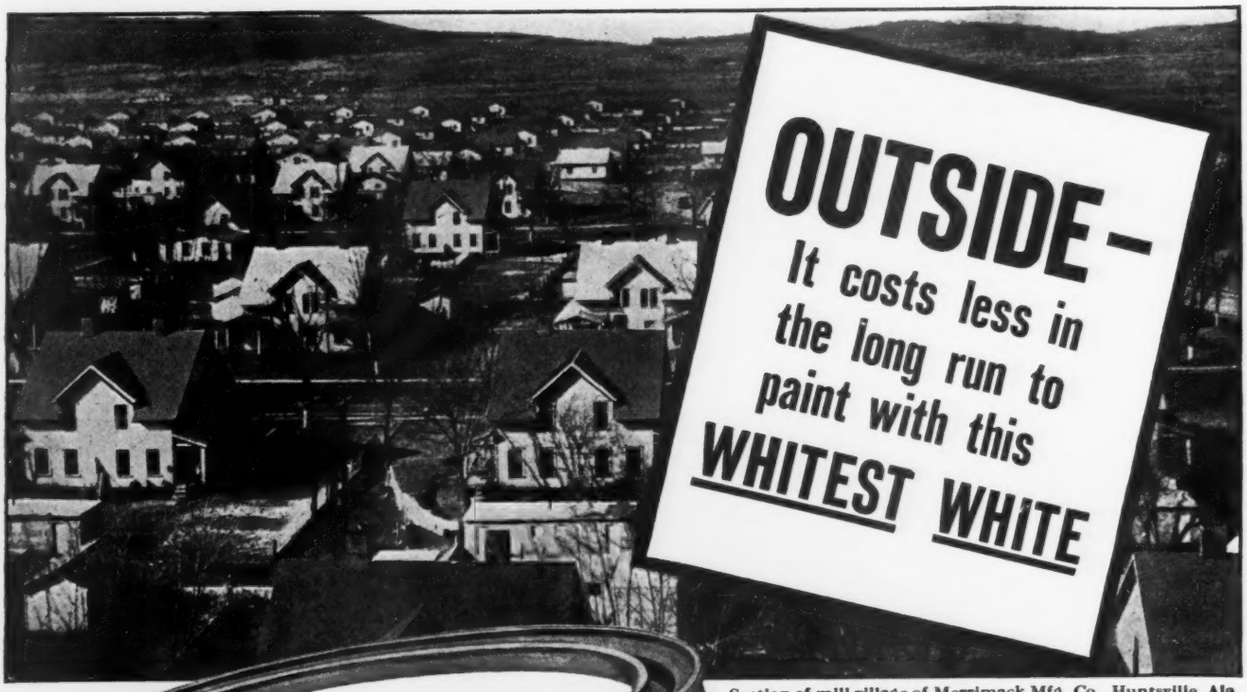
You may be certain that Interior Barreled Sunlight, the Rice Process White, will remain white longer than any other oil-gloss paint or enamel, domestic or foreign. The statement below is your surety of this.

Make substantial savings by painting up with Interior Barreled Sunlight now!

YOUR SURETY...

We maintain that Interior Barreled Sunlight, the "Rice Process" White, will remain white longer than any oil-gloss paint or enamel, domestic or foreign, applied under the same normal service conditions and according to our specifications. If it does not do so, we will give, free, enough Barreled Sunlight to repaint the job.

Interior and



Section of mill village of Merrimack Mfg. Co., Huntsville, Ala.

HOW to protect mill village investments by keeping outside painted surfaces up to par . . . and do it at low cost? Many textile managements have found in Outside Barreled Sunlight the solution to this constant problem.

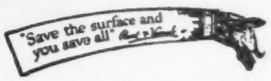
Painted with this whitest of outside whites, or in its variety of practical colors, mill village homes are completely protected against weathering . . . remain trim and neat, year after year.

First costs of painting with Outside Barreled Sunlight are low, despite the fact that this paint costs more *per gallon* than most outside paints.

Time and labor are saved through its remarkable "ease of flow" which makes possible quick, easy application. Because it spreads further, less paint is needed to cover a given surface.

Then, too, the extreme durability of Outside Barreled Sunlight greatly lengthens the time between repaintings. A surface painted with Outside Barreled Sunlight wears away slowly and evenly. When repainting time finally comes around—it is ready for its new coat. There's less money to spend for scraping and sandpapering. Fewer coats needed to cover the surface well.

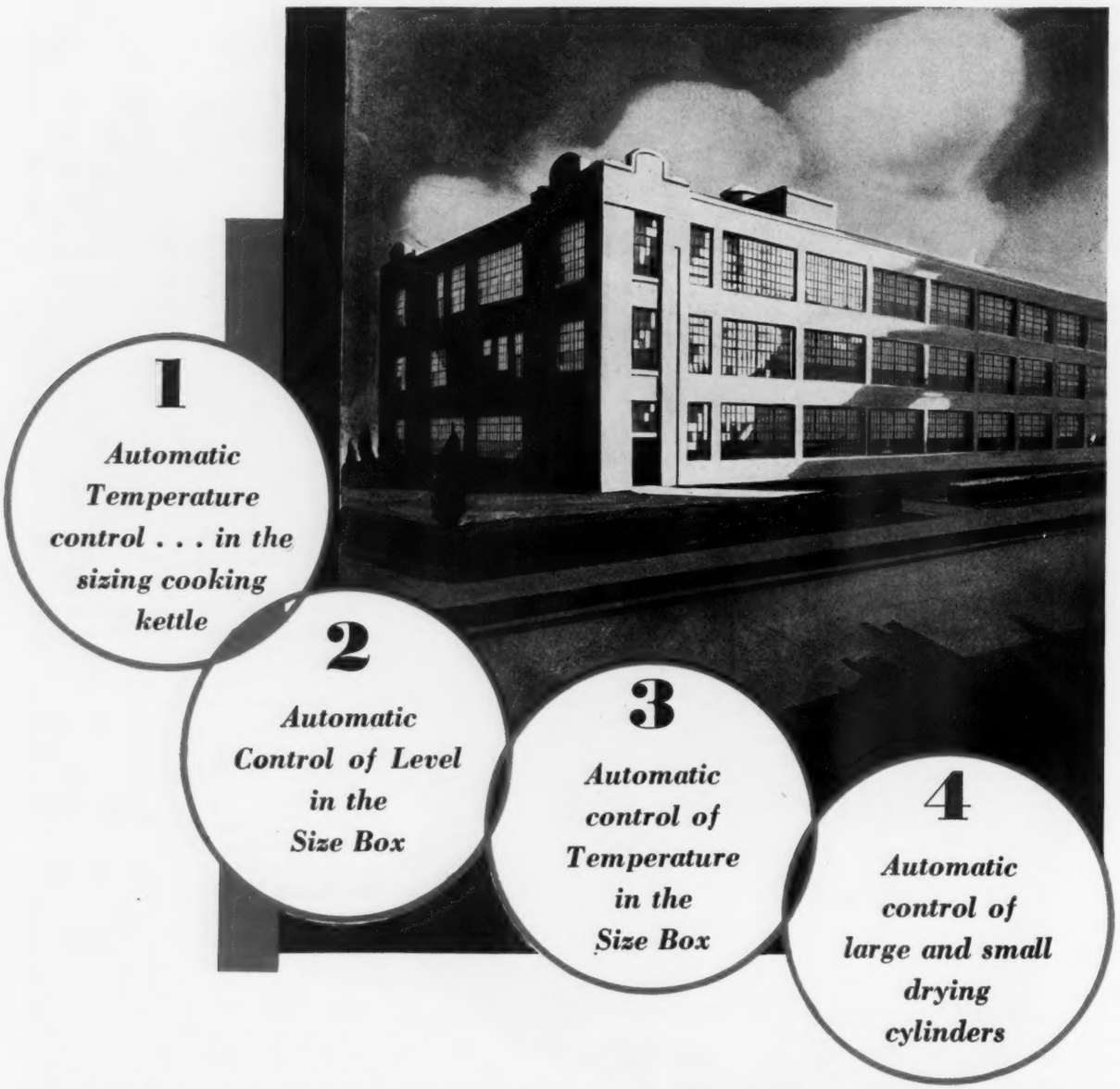
Complete information on both Interior and Outside Barreled Sunlight is yours for the asking. Write for it to U. S. Gutta Percha Paint Company, 8-D Dudley St., Providence, R. I. Branches or distributors in all principal cities. (For Pacific Coast, W. P. Fuller & Co.)



Outside Barreled Sunlight

Reg. U. S. Pat. Off.

Because FOXBORO has of *Slasher Control*.....it is


1
Automatic Temperature control . . . in the sizing cooking kettle
2
Automatic Control of Level in the Size Box
3
Automatic control of Temperature in the Size Box
4
Automatic control of large and small drying cylinders

NOT AN APPLICATION OF ONE OR TWO INSTRUMENTS

. . but . . . A Completely Engineered System

COMPLETE TEXTILE INSTRUMENTATION..

perfected a COMPLETE system saving money for many mills

We take it for granted that the experienced Textile Mill Executive knows and appreciates the value of correct temperature regulation in slashing and its effect on warp breakage in weaving.

Not only specific tests, but actual day by day practice in big mills have demonstrated that such control reduces warp breakage up to 35%, as well as increasing production and reducing the consumption of both starch and steam.

The important thing to remember is, that for best results, *such control must be complete* . . . from the beginning to the end of the cycle.

The experience of many successful mills has been that the FOXBORO SYSTEM has been so notably successful because it is one system that is engineered to provide perfect automatic control of the four essential steps in the slasher cycle.

The Size **is automatically cooked at the correct temperature for the proper time and when finished, the steam is shut off and a signal light turned on.**

The Level **of the size in the size box is automatically held at constant level. A variation in size level means light and heavily sized yarn on the same beam.**

The Temperature **in the size box is held at a predetermined point resulting in uniform consistency with no waste of steam or starch.**

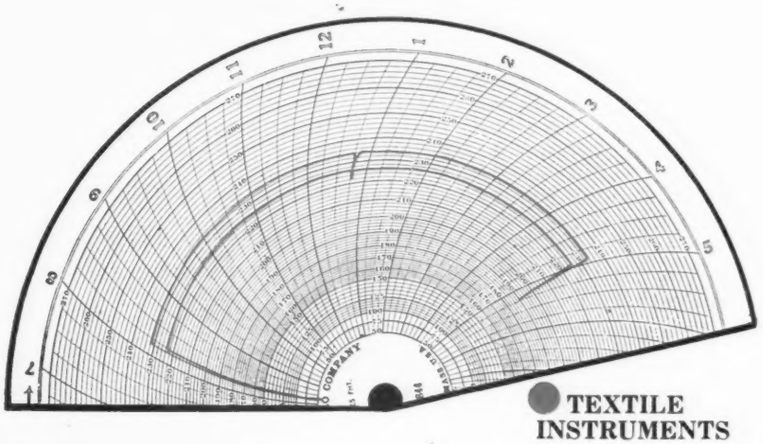
The Large Cylinder **is kept at a temperature low enough to dry the wet sized yarn evenly throughout . . . the small cylinder remains at a higher temperature, thereby drying the yarn thoroughly on the outside, with the proper amount of moisture left in the center.**

In brief, the Foxboro System of Slasher Control, as installed by Foxboro Engineers, is a *complete system*, each step properly balanced and related to increase your production, reduce your costs, give you better results. It is the choice of mill men who cannot afford to take chances and who are already familiar with the reputation of Foxboro Instruments in the many other departments of textile mill processing.

If you are interested in specific results based on knowledge and experience — why not have a Foxboro Engineer call and without any obligation on your part) discuss Foxboro Slasher Control?

The evidence is yours . . . if you want it . . .

The records on the right show the exact temperature control of both small and large slashing drums when the Foxboro System is used. This is just part of the evidence. Actual results have shown 29% saving in cost of size ingredients, 12-15% saving in steam, 15-20% increase in slasher speed, 25-35% decrease in loom stoppage due to warp breakage.



TEXTILE INSTRUMENTS

In addition to Slasher Control Foxboro has a complete line of Recording and Controlling Instruments and has applied them with success to practically every textile mill operation. Send your problem to us.

Temperature Controllers
Recording Thermometers
Humidity Recorder and Controllers
Steam Flow Meters
Pressure Gauges
Time Temperature Controllers
Tachometers
Power Plant Instruments

FOXBORO
REG. U.S. PAT. OFF.
THE COMPASS OF INDUSTRY

THE FOXBORO COMPANY, FOXBORO, MASS., U. S. A.

They can "take it"

Built with the primary purpose of outlasting ordinary parts, HENDERSON Textile Repair Parts can "take it",—standing up under the hardest knocks and most severe service.

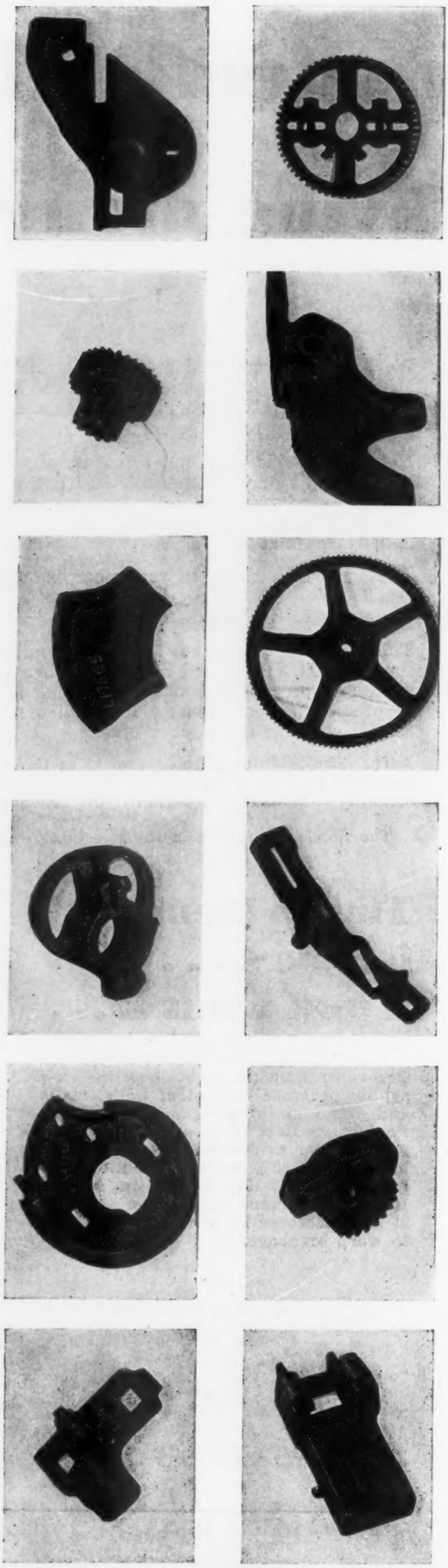
Long experience with textile equipment and knowledge of the weakest points in present day machinery, together with high quality material, skilled workmen and precision patterns —all combine to make HENDERSON Textile Repair Parts the most accurate fitting, dependable, economical repair parts for textile equipment.

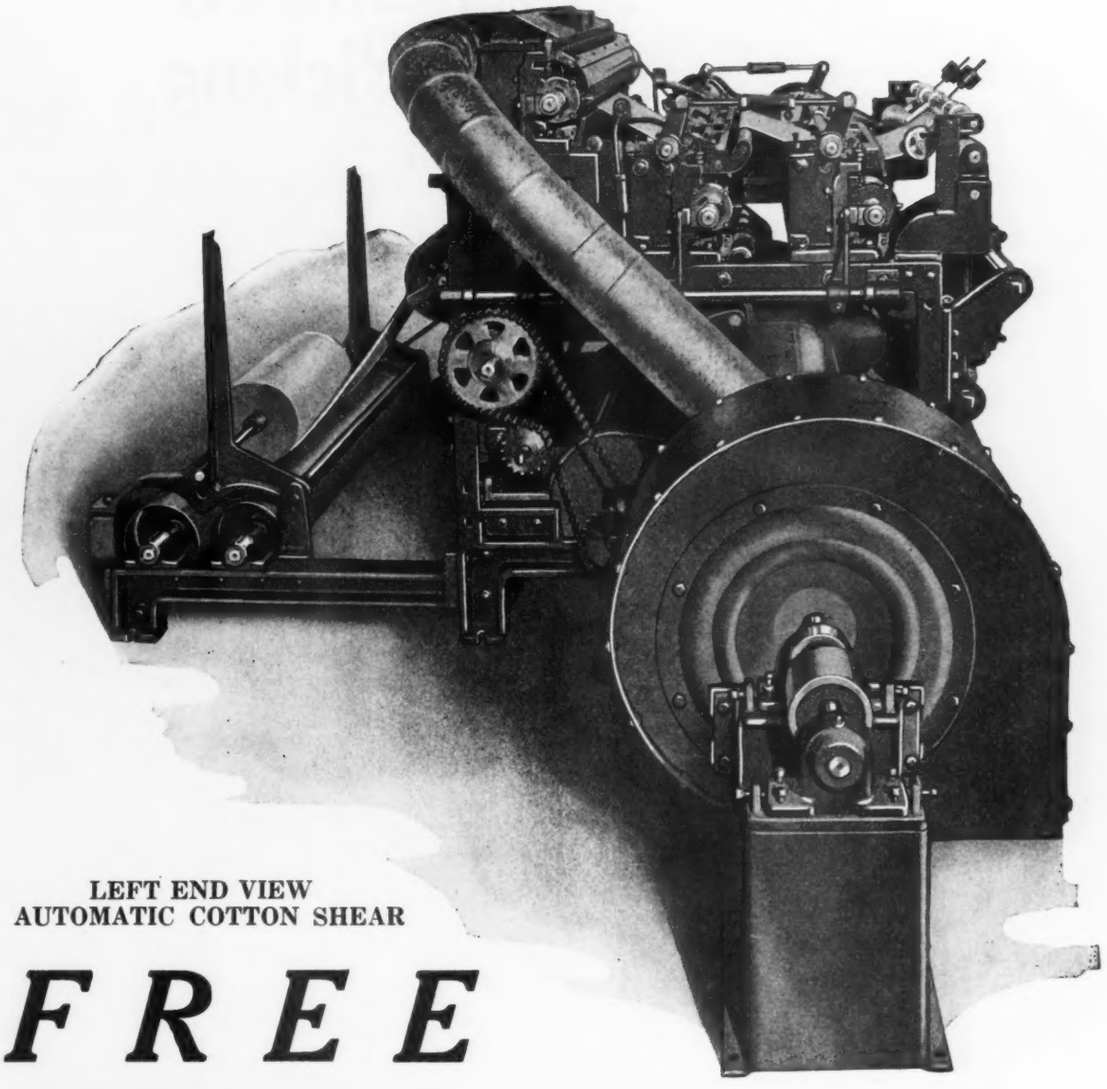
Low overhead and close location to Southern mills enable us to render quick service and make substantial savings.

Let us quote prices on any textile part for any make of machine.

HENDERSON FOUNDRY & MACHINE WORKS
HAMPTON, GEORGIA

HENDERSON TEXTILE REPAIR PARTS





LEFT END VIEW
AUTOMATIC COTTON SHEAR

FREE TRIAL

AUTOMATIC COTTON SHEAR

A SELF RUNNING MACHINE THAT SAVES MANY GIRL TRIMMERS

CLEANER CLOTH AT LESS COST

WE MAKE THE WHOLE **CLOTH RANGE** WITH SEWING MACHINE, CLOTH FEEDING SCRAY, SIX TO TWELVE ROLL CLEANING UNIT, AUTOMATIC SHEAR, AUTOMATIC GUIDERS AND CALENDER ROLL MACHINE COMPLETE

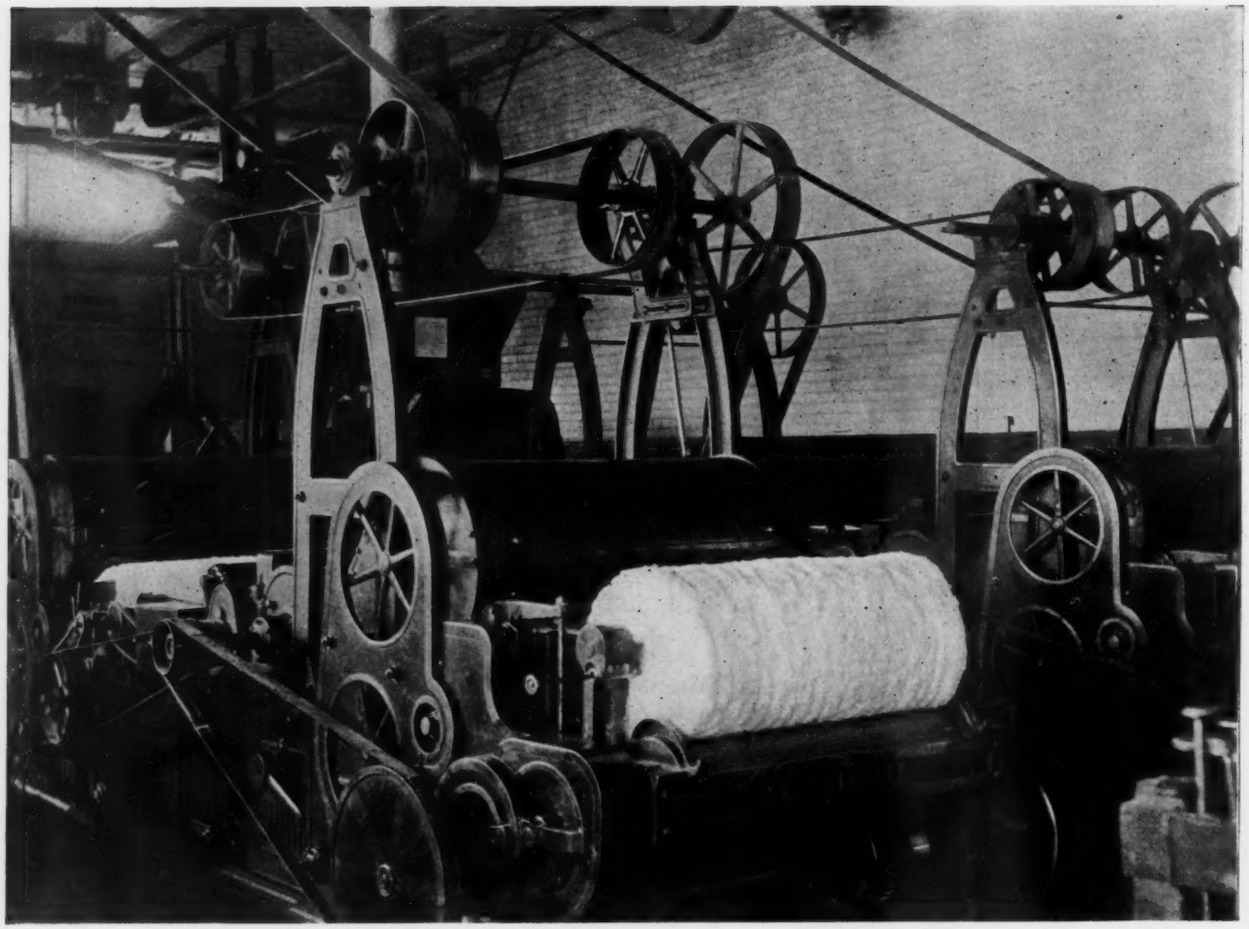
SOUTHERN REPRESENTATIVE

P. B. RAIFORD Jr. CONCORD NORTH CAROLINA

PARKS & WOOLSON MACHINE CO.
SPRINGFIELD, VERMONT

Aldrich Synchronized Single Process Picking

The only Single Process Picking System which does not overload the evener.



Where all other systems *add* load to the evener, the Aldrich System *takes load off.*

This makes evener laps with fewer losses.

The Aldrich System of Synchronized Single Process Picking has repeatedly proved itself on comparative tests to be the best, and more pickers have been changed to it than to any other system.

Made and Installed by

ALDRICH MACHINE WORKS

Greenwood, South Carolina

FOR DEEP RED AND ORANGE PRINTS
at Low Cost *

● Stabilized Azoic dyestuffs in paste form for printing cotton and rayon materials. Economical for large patterns in full shades possessing very good fastness properties. May be printed along with vat colors. Send for samples and more data today.

And bear in mind that whenever you have a dyestuff problem our complete technical service is always available for consultation.

*

PONTAGEN Orange RH Paste

PONTAGEN Red RH Paste

PONTAGEN Scarlet LH Paste

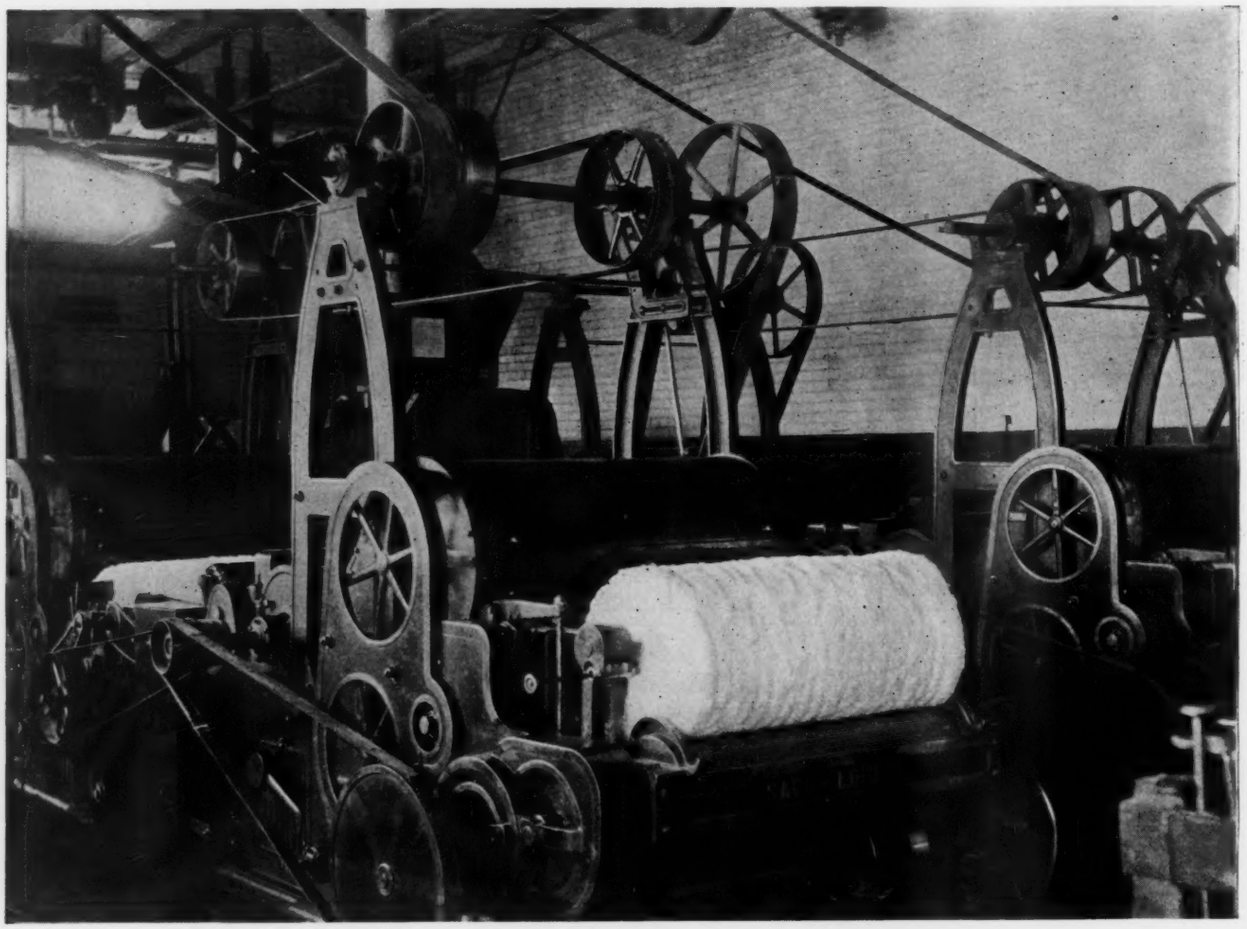
DU PONT DYESTUFFS

REG. U.S. PAT. OFF.

E. I. DU PONT DE NEMOURS & CO.
INCORPORATED
Organic Chemicals Department
Dyestuffs Division, Wilmington, Delaware

Aldrich Synchronized Single Process Picking

The only Single Process Picking System which does not overload the evener.



Where all other systems *add* load to the evener, the Aldrich System *takes load off.*

This makes evener laps with fewer losses.

The Aldrich System of Synchronized Single Process Picking has repeatedly proved itself on comparative tests to be the best, and more pickers have been changed to it than to any other system.

Made and Installed by

AldricH MachinE WorkS

Greenwood, South Carolina

FOR DEEP RED AND ORANGE PRINTS
at Low Cost *

● Stabilized Azoic dyestuffs in paste form for printing cotton and rayon materials. Economical for large patterns in full shades possessing very good fastness properties. May be printed along with vat colors. Send for samples and more data today.

And bear in mind that whenever you have a dyestuff problem our complete technical service is always available for consultation.

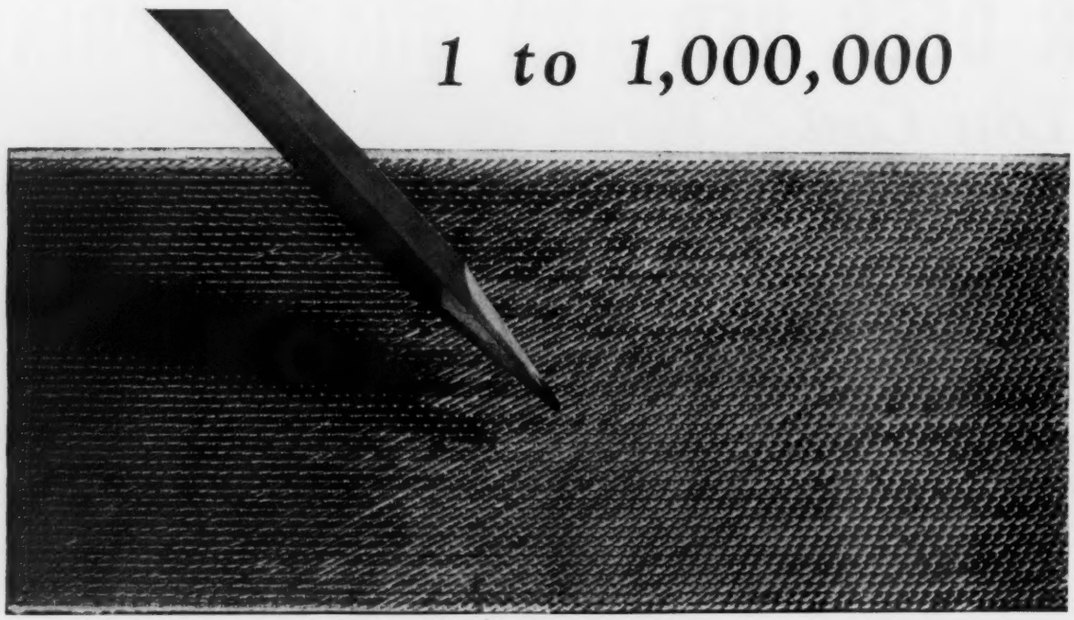
*

PONTAGEN Orange RH Paste
PONTAGEN Red RH Paste
PONTAGEN Scarlet LH Paste

DU PONT DYESTUFFS
REG. U.S. PAT. OFF.

E. I. DU PONT DE NEMOURS & CO.
INCORPORATED
Organic Chemicals Department
Dyestuffs Division, Wilmington, Delaware

Pick *any* TUFFER *point from* *1 to 1,000,000*



When you have placed a pencil on one wire point of Tuffer Card Clothing on a cylinder, you have indicated a million and a half points exactly alike. In that uniformity lies the secret of efficient unvarying carding. Our most precision-like machines that produce Tuffer card clothing are responsible for millions of these wire points all alike.

Then we draw it on a cylinder and grind it until every point is true and every wire equally sharp, which again leaves them all alike. Every Tuffer Fillet receives this grinding so that you can cloth your cylinder and start operation without any immediate regrinding. Still we're not satisfied, so we test, measure and examine every foot of fillet minutely.

Naturally only wire of the finest temper can pass tests of this kind. It has to be set exactly in a patented Tuffer Foundation so that it remains limber yet sharp. That's why card rooms of mills that make the most exacting demands are equipped with Tuffer products.

Tuffer Products
Card Clothing
Napper Clothing
Cylinder Fillets
Doffer Fillets
Stripper Fillets
Hand Stripper Cards

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.

Tuffer Products
Burnisher Fillets
Emery Fillets
Wire Heddles
Top Flats Recovered and Extra Sets Loaned.

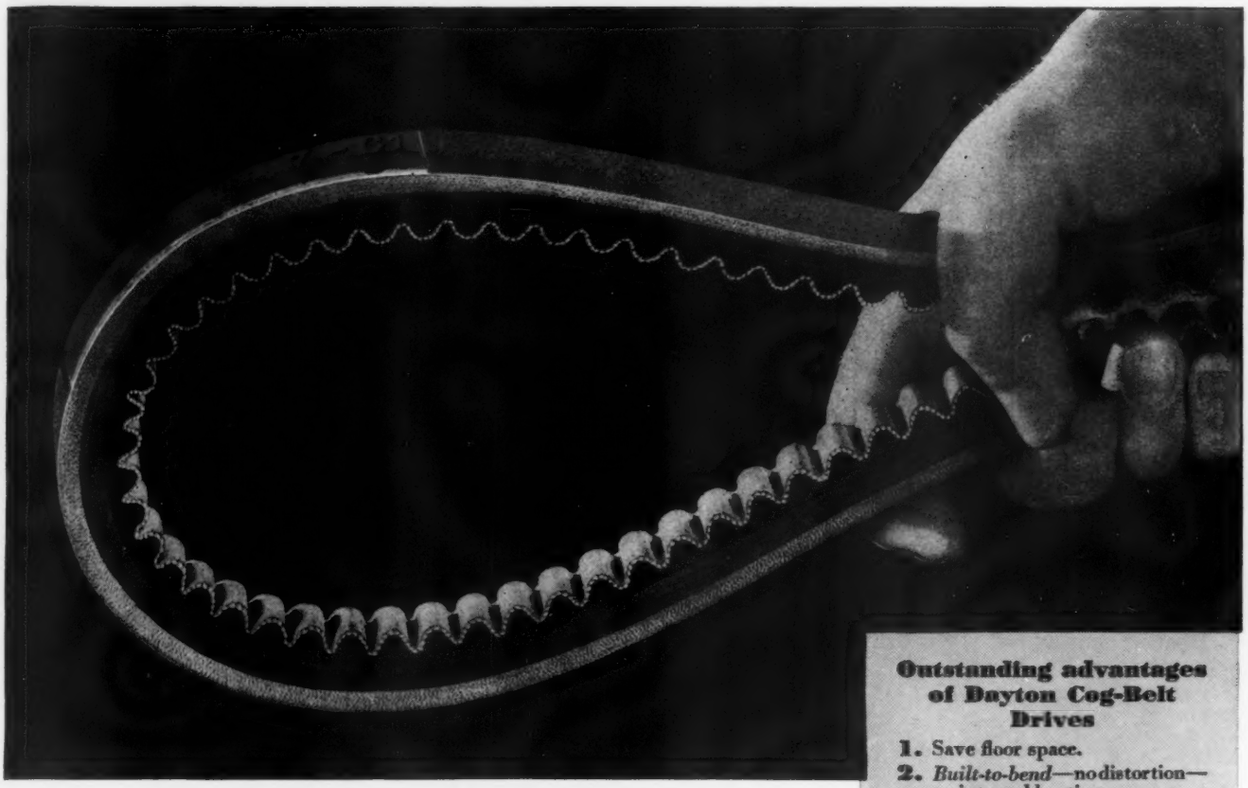
HOWARD BROS. MANUFACTURING CO.

HOME OFFICE & FACTORY—WORCESTER, MASS.

SOUTHERN PLANT
244 Forsyth Street
Atlanta, Ga.

BRANCH OFFICES
Philadelphia, Pa., Dallas, Texas, and Washington, D. C.

Built to bend



Scientific construction of Dayton Cog-Belts makes possible the amazing performance of Dayton Cog-Belt Drives

Long life and *low maintenance cost*—these are outstanding features of Dayton Cog-Belt Drives. And the reason is that Dayton Cog-Belts are "built to bend." Their exclusive *cogged* section and *laminated* construction give them a flexibility never before attained in a V-type belt.

And along with that, their patented reinforcement gives unequalled cross-wise rigidity. Thus, regardless of pulley diameters, there's no distortion, buckling or rippling, no "squashing" in the pulley groove—*the only V-Belt that combines maximum flexibility with cross-wise rigidity.* Furthermore, the sides are die-cut—not molded. This means greater gripping power at any speed—no slipping or sliding—less loss of power, less tension needed, less wear on bearings.

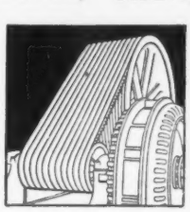
And along with their greater efficiency, Dayton Cog-Belts *cost less to use.* Adjustments are seldom necessary, for the "stretch" is removed in the process of manufacture. And their longer life means *lower replacement costs*—often *less than half* that of ordinary belts.

But there are many more reasons why Dayton Cog-Belt Drives give greater service for less money. May we send you all the facts?

• • •

THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO

Factory Distributors in Principal Cities and all Westinghouse Electric and Manufacturing Co. Sales Offices



Outstanding advantages of Dayton Cog-Belt Drives

1. Save floor space.
2. *Built-to-bend*—no distortion—no internal heating.
3. Greater gripping power—no slipping or sliding.
4. Stretch removed—fewer adjustments necessary.
5. No dressing or lubrication.
6. Less tension required—easy on bearings.
7. Longer life—belt replacement costs often cut in half.
8. Quiet—Clean—Rugged.

Complete drives—pulleys and belts—in stock. Fractional to 100 H. P.

DAY-STEEL PULLEYS

Investigate the exceptionally low cost of Dayton Cog-Belts with Day-Steel Pulleys

Dayton

COG-BELT DRIVES

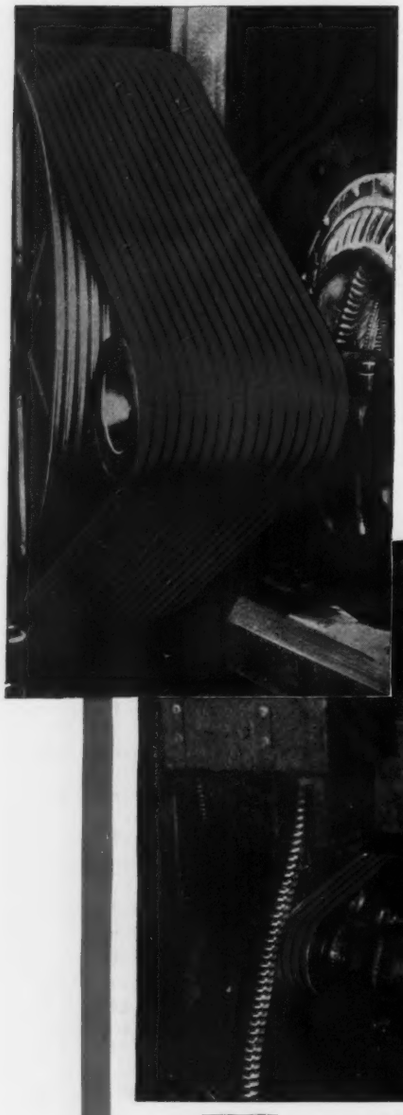
Also manufacturers of Dayton Fan Belts . . . Dayton Red Tube Radiator Hose . . . and the famous Dayton Thorobred Tires and Tubes

DESIGNED WITH NO INELASTIC STRETCH

CONDOR V-BELTS

(LICENSED UNDER PAT. NO. 1,662,511)

Have 29.4% to 358.2% Longer Life

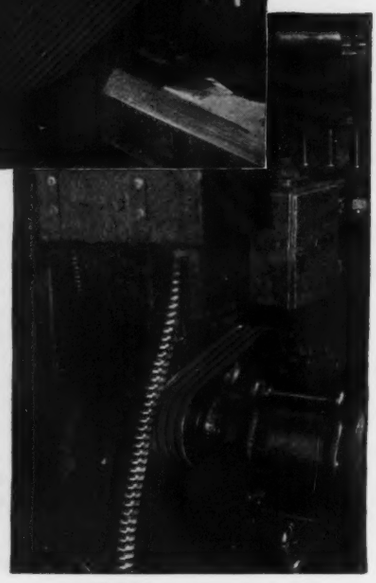


HAVE 8-POINT BALANCED CONSTRUCTION

1. No inelastic stretch
2. Wide margin of strength
3. Uniform flexibility
4. Freedom from structural failures
5. Smooth running until discarded
6. Maximum traction
7. Slow side wear
8. Stiff lateral rigidity

These eight features, based on extensive performance tests, are correctly embodied in every Condor V-belt. For heavy duty power drives use sizes D or E, both of super-strong Plycord construction. On high speed drives the highly flexible Whipcord type, sizes A, B or C will give unusual satisfaction. A trial of Condor V-belts will convince you.

NRA WE DO OUR PART



Whipcord

Unusual flexibility, necessary in high speed drives, is ideally provided in this V-belt. Extreme lack of stretch and remarkable strength particularly fit it for grueling high speed service.

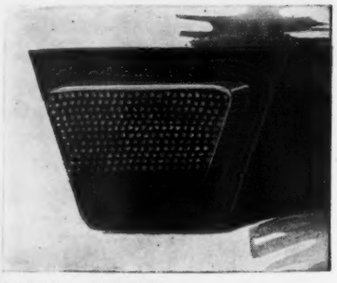
Plycord

This is an exceedingly strong heavy-duty construction. Stretch does not exceed 1.6% to 1.9% of length of belt. Smooth running is assured at all times.

Condor LINE

V-Belt	Fire Hose
Flat Belt	Steam Hose
Air Hose	Mill Sundries
Cone Belt	Suction Hose
Acid Hose	Oilless Bearings
Water Hose	Rubber Lined Tanks

Rubber Covered Rolls
Industrial Brake Blocks and Lining



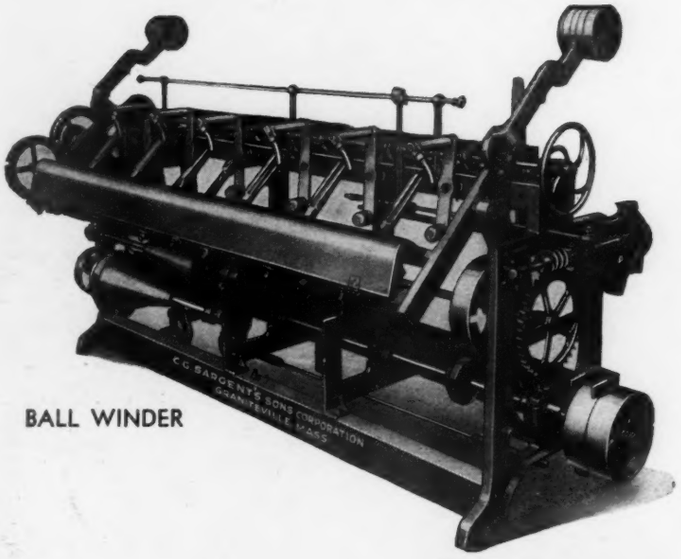
SOLE MAKERS OF CONDOR COMPENSATED BELT

THE MANHATTAN RUBBER MFG. DIVISION

OF RAYBESTOS-MANHATTAN, INC.

EXECUTIVE OFFICES AND FACTORIES, PASSAIC, NEW JERSEY

MARKET CONDITIONS DEMAND FLEXIBILITY



BALL WINDER

Sargent's Ball and Card Winders are so constructed and designed that with few adjustments these machines are rendered capable of winding various types of material into many different packages.

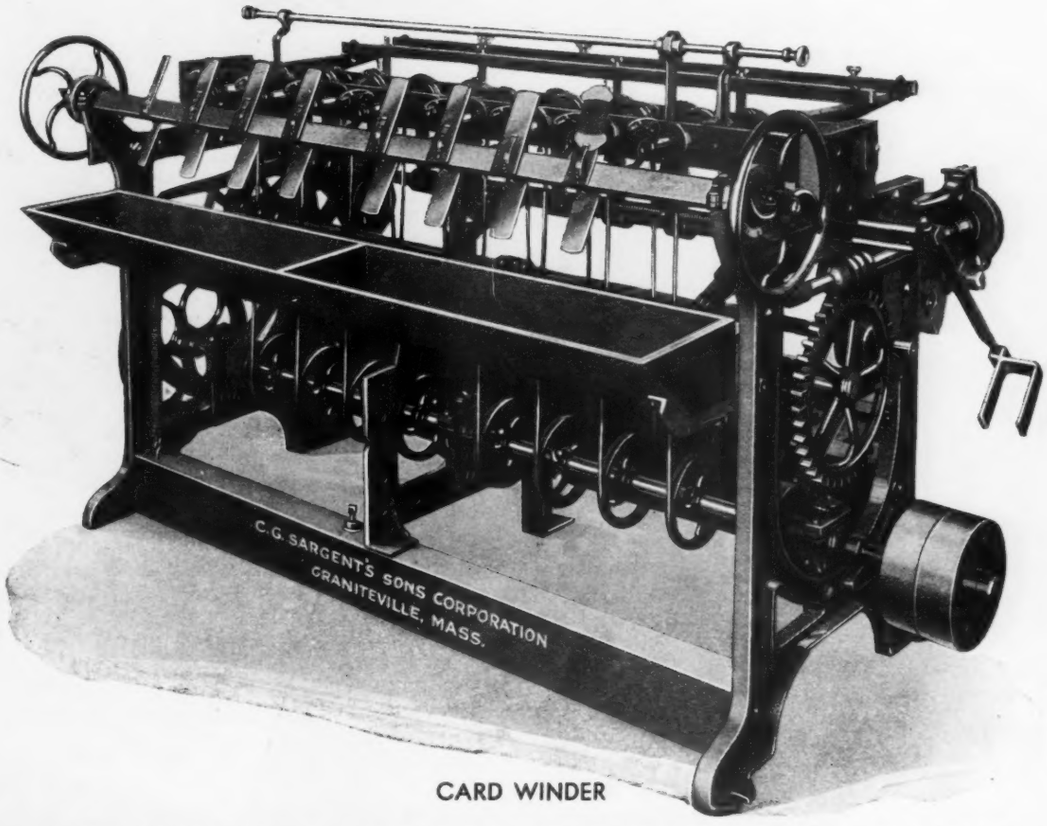
The machines pictured will wind in ball or card form tinsel, wrapping twine, cotton or woolen yarns, knitting silk, thread, wicking, hemp, jute, paper twine and ribbon.

In these times of changing markets, the manufacturer must be prepared to readjust his machinery to meet the varying demands. Sargent's Ballers and Card Winders give the mill owner a distinct advantage,—a few minor changes and he is well fitted for an entirely different market.

The flexibility of this equipment is a feature every prospective buyer should consider.

Also Manufacturers of

Automatic Feeders
Bagging Machines
Cloth Dryers
Cotton Stock Dryers
Continuous Automatic Extractors
Cotton Rinsers
Dusting Machines
Opening Pickers
Skein Dryers
Wet Pickers
Yarn Conditioning Machines



CARD WINDER

C. G. SARGENT'S SONS CORPORATION

Southern Agents
Fred H. White, Charlotte, N. C.
Fred T. Brooks, Atlanta, Ga.

Founded 1852
GRANITEVILLE MASSACHUSETTS

Phila. Agent
F. E. Wasson
Drexel Building

SARGENT IS THE PIONEER AMERICAN BUILDER OF DRYERS

VIM TRED
• Look at your finger!
Nature gave it a ribbed, "non-skid" surface to make it GRIP better. VIM TRED Leather Belting uses this same fundamental, time-proven principle. As a result it gives you 25% to 40% MORE GRIP than smooth belts.

NATURE gave us an Idea

that increased the pulling power of belting 25 to 40%

NATURE—in its infinite wisdom—designed your fingers to *grip*. That's why they grip better than the smooth skin on the rest of your body.

Non-skid tires use the same fundamental principle—that's why they grip better than smooth tires.

Now this "non-skid" principle has been applied to

VIM TRED LEATHER BELTING

and actual tests prove that it GRIPS 25% to 40% better than smooth belting.

Here's what this EXTRA GRIP means to you:

1. Less loss of power through belt slip.
2. More speed and more production from the driven machine.
3. Less wear and consequently longer life for both belt and pulleys.
4. Less expense for take-up, repair and replacement of belts.
5. VIM TRED can be operated under lower tension, which means less wear on belt and pulleys.

VIM TRED Leather Belting is designed to give you more efficient power transmission at lower cost. Put a VIM TRED Belt on any drive in your plant and let it prove to your satisfaction that it will banish your belt worries and reduce your belt costs.

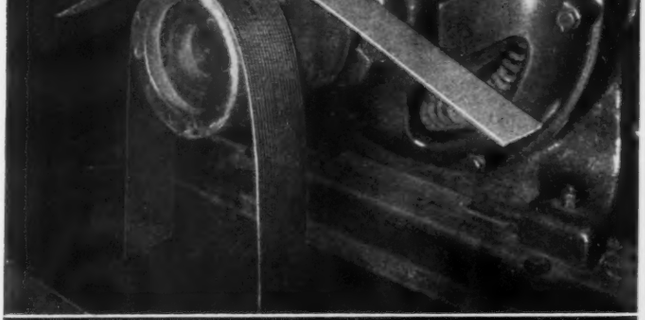
E. F. HOUGHTON & CO.

Chicago PHILADELPHIA Detroit

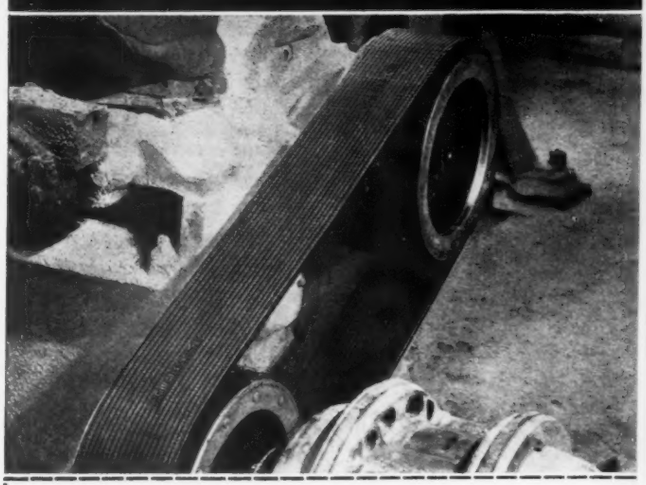
And All Over the World

Send this coupon for an ACTUAL SAMPLE FREE and an interesting booklet which shows how VIM TRED Leather Belting will reduce your belt costs.

Below—VIM TRED is so flexible that it hugs the pulley at any speed. Note how the 4-inch VIM TRED Leather Belt conforms to the pulley as compared with an oak-tanned leather belt of the same width and thickness.



Below—On dusty drives, as the VIM TRED Belt approaches the pulley the air is forced out the narrow grooves in tiny jets which prevent dust from depositing on the belt or pulley surface.



E. F. HOUGHTON & CO. 4-34
240 W. Somerset St., Philadelphia, Pa.

Please send me a FREE SAMPLE of VIM TRED Leather Belting and a copy of your interesting booklet.

Name.....
Position.....
Company.....
Address.....
City..... State.....

"You say, Dr. Steelstrap, that you can cut down our Shipping Costs?"

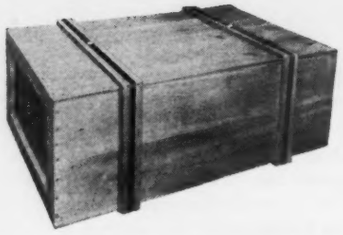
"I am sure I can work out a treatment that will effectively cure any painfully expensive weakness in your case."

. . . . . .

Shippers are constantly calling me in, and together we diagnose and prescribe. The shipper himself can generally help to work out the most practical means of administering the Steelstrap treatment after he has seen how completely Acme equipment meets every need. He has the intimate knowledge of the case, I have the broad experience. The result is an improved package, and consequently a more economical one.

My STRAP-BOOK describes and illustrates many different case histories. Shippers have found this information of great value. And, it is free to all who write for it.

Doc. *Steelstrap*



CONTENTS: Curtain cloth in rolls. SAVED: 28 pounds in weight and 71 cents in cost (including Steelstrap) over the box formerly used —REASON: Acme Steelstrap.

Bound to get there

Here's a shipment of cotton textiles—and a neat job of packaging. The contents are tightly compressed, placed in a fibre case, and reinforced with Acme Steelstrap.

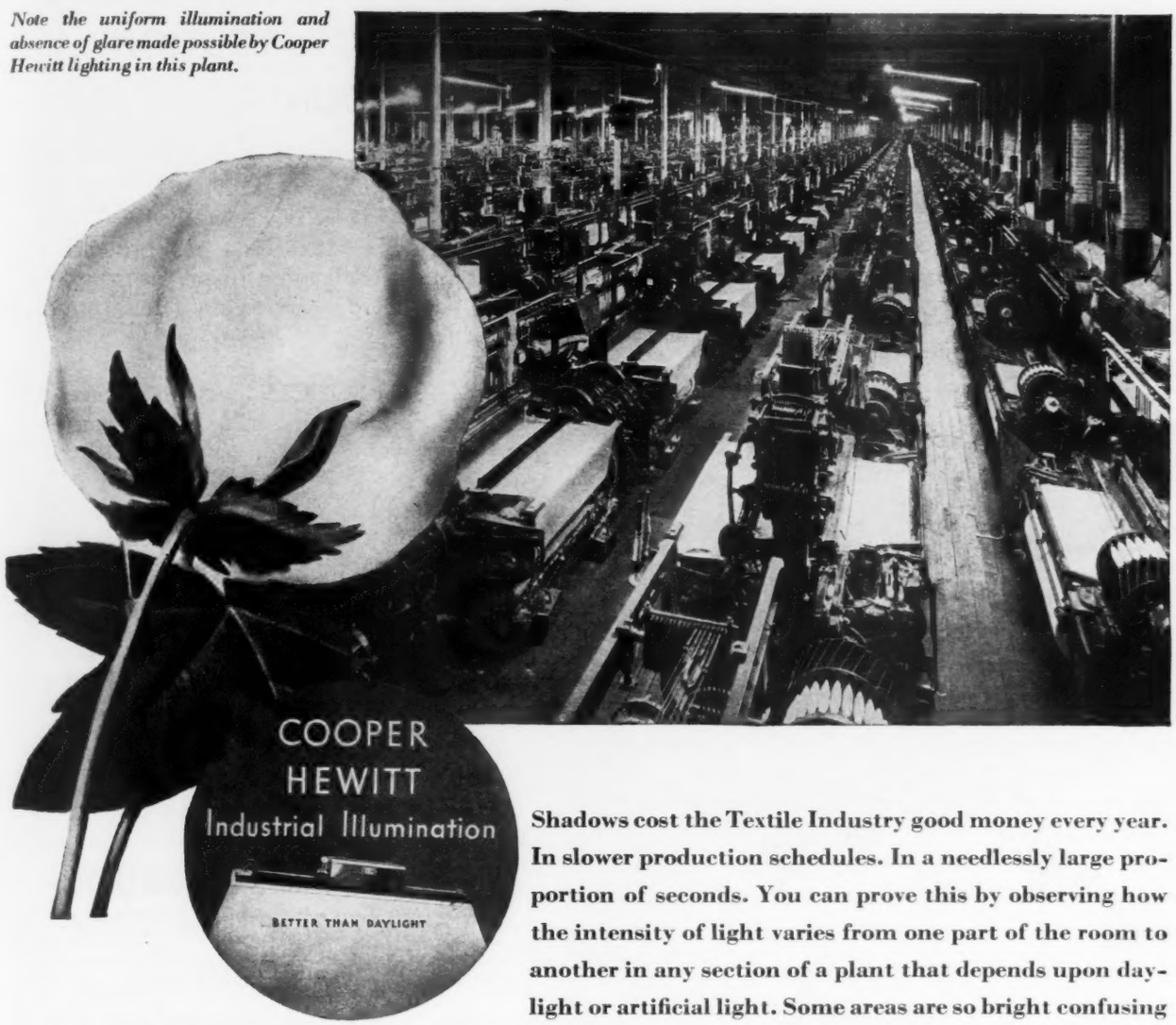
Acme Steelstrap

ACME STEEL COMPANY · GENERAL OFFICES: 2847 ARCHER AVE., CHICAGO

Branches and Sales Offices in Principal Cities

ARE YOU WASTING good money in shadows?

Note the uniform illumination and absence of glare made possible by Cooper Hewitt lighting in this plant.



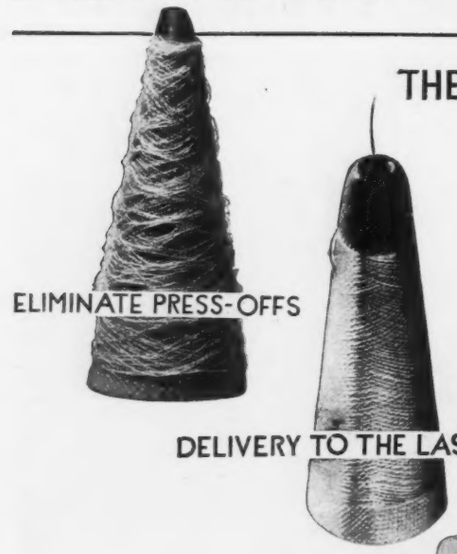
Shadows cost the Textile Industry good money every year. In slower production schedules. In a needlessly large proportion of seconds. You can prove this by observing how the intensity of light varies from one part of the room to another in any section of a plant that depends upon daylight or artificial light. Some areas are so bright confusing reflections cause unnecessary eye-strain, slow down skilled operators. Other areas are in deep shadow, making droplights and flashlights a necessity. • Now glance at the installation of Cooper Hewitt mercury-vapor lamps shown here. *There are virtually no shadows.* Partly because Cooper Hewitt light is highly diffused and is of a quality that eliminates glare. • This modern, efficient lighting has a long record of achievement in reducing production costs throughout the textile industry. It can do the same for you. A trial installation is yours for the asking and without any obligation to purchase the lamps. Simply write to: General Electric Vapor Lamp Company, 853 Adams St., Hoboken, New Jersey.

GENERAL ELECTRIC VAPOR LAMP COMPANY

591 Copr. 1934 General Electric Vapor Lamp Co.

SONOCO
DEMONSTRATES

THEIR MOST IMPORTANT CONTRIBUTION TO THE KNITTING INDUSTRY



Microscopic perfection in the new SONOCO Satin Finish Velvet Surface Cone has brought about the practical elimination of all press-offs in delivering fine count silk or rayon yarns from cone to machine.

By the same token SONOCO Velvet Surface Cones are accomplishing similar results with cotton knitting yarns as well.

The fraction of an ounce waste in each press-off, when multiplied by the thousands of cones used during a year's time, assumes important proportions.

SONOCO will present a progressive exhibit, showing the superiority of their Velvet Surface Cones in delivering yarn to the Knitting Machine without waste, in their space

AT THE

KNITTING ARTS EXHIBITION
APRIL 23-27 — PHILADELPHIA
SPACE 129

NRA MEMBER U.S. WE DO OUR PART

SONOCO PRODUCTS COMPANY

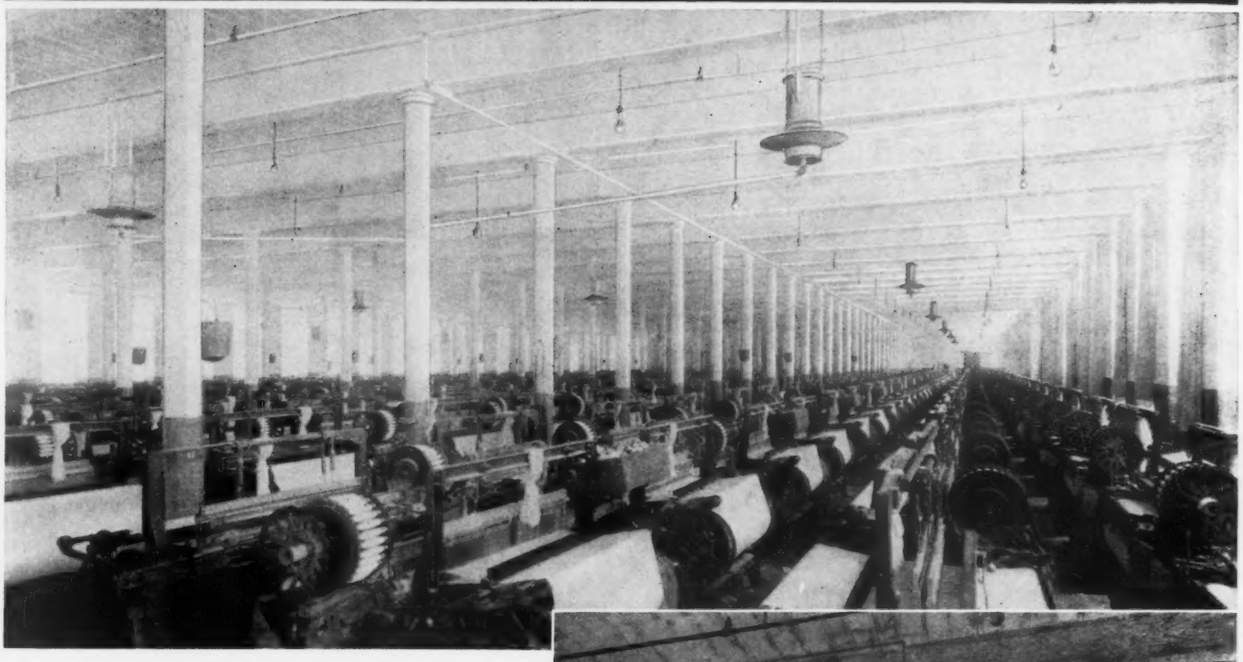
HARTSVILLE, S. C.

Branch Plants:
Rockingham, N. C.
Garwood, N. J.
Brantford, Ont.

Main Plant and General Offices:
Hartsville, S. C.

Eastern Sales Office:
North Avenue,
Garwood, N. J.

TWO PICTURES *tell the story!*



● No loom or loom operator ever turned out good work quickly while working in the dark. In a poorly lighted room, defects too often "get by" . . . production slows up.

The Tucapau Mills at Tucapau, S. C., recently painted this loom room with S-W Save-Lite. Notice the difference! Every ray of light softly diffused from windows and artificial lights. Working light increased 30% to 50%.

In addition to creating better light for better sight, Save-Lite also increases property value. We have made a comprehensive study of the textile trade's specialized requirements and our finishing engineers are able to recommend products that will give the best service over a longer period of time.

Sherwin-Williams Save-Lite is easily applied with either brush or spray gun. In Eg-Shel, Gloss and Flat, it can be applied over a wide variety of surfaces to meet any light or painting problem in mill or factory.

SHERWIN-WILLIAMS

STANDARD PRODUCTS for TEXTILE MILLS and VILLAGES

TEXTILE OFFICES: Philadelphia, Charlotte and Spartanburg,

Atlanta, Nashville, Newark, N. J., Boston, Mass.

Warehouse connections at all offices carry stock for prompt service to the textile trade.

The VANDERBILT Hotel

New York City

Visitors

always enjoy its Atmosphere of Friendliness and Charm and its Air of Distinction as well as its Excellent Cooking and Exceptional Service . . . . Its Convenient Location, its Nearness to Railway Terminals, Shopping District, Theatres, make it the

"Handiest" Stopping-place in New York

To these Attractions add

REMARKABLY LOW RATES

Single Room and Private Bath $3.00 *Double Room with Two Beds and Private Bath* $5.00

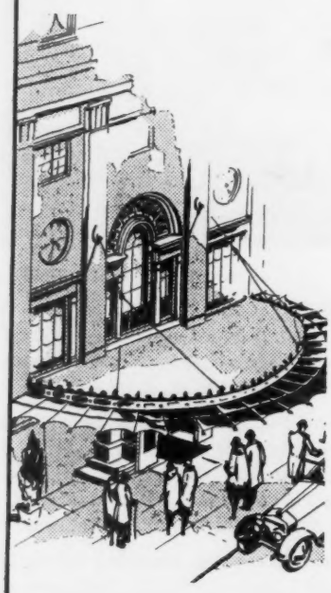
SPECIAL!

Breakfast, 75 cents; Luncheon, One Dollar; Dinner, $1.50

DINE AND DANCE IN THE FAMOUS DELLA ROBBIA ROOM

WALTON H. MARSHALL, *Manager*

Park Avenue at Thirty-fourth St., New York.



The Della Robbia Room

NEW DULUX STAYS WHITER

REG. U. S. PAT. OFF.

AMAZING NEW WHITENESS FOR PLANT INTERIORS WITH DULUX MILL WHITE

Remarkable Resistance to Dirt Collection Assures Repainting Economy

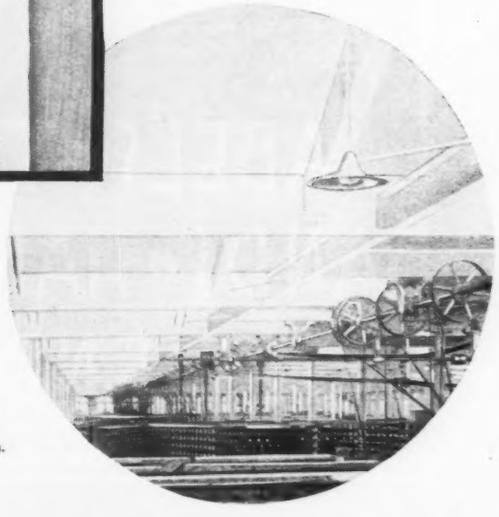
Du Pont answers your modern needs for a mill white that stays cleaner and whiter. Mill superintendents and painters have found its light reflection superiority is much more evident 6 months after it is applied than when new, and they have proved it an easier, speedier and more economical finish to put on. And DULUX gives the better light which means better sight—more efficient employees.

Nature's own pure whiteness is rivalled by the snowy whiteness of Dulux. For specially selected pigments make Dulux whiter than other finishes you have known.

Proof of resistance to dirt collection offered by Dulux Mill White. Lower half of this door jamb was finished with Dulux. The upper half with another mill white. Despite the touch of dirty fingers and hands DULUX is still cleaner and whiter. DULUX has no "after-tack" which picks up dust and dirt.

Now see the difference (in lower panel) after washing. The DULUX finish is back to its original whiteness. But the other finish still holds its dirt. Here's one big reason for DULUX maintenance economy.

Mill superintendents echo what this one says, "Plenty of finishes are white enough when you put them on. Our problem was to find one that was white originally and that would stay whiter. We found it in Dulux Mill White. This finish has saved us many a repainting. Occasional washings are enough to retain its original whiteness. That's money in our pocket."



Workers in plants finished with Dulux Mill White make fewer mistakes—are more efficient because this whiter white ends factory gloom and makes artificial lighting more efficient. Available in either gloss or eggshell. Economical quick-drying finishes.

SEND FOR FREE BOOKLET TODAY

Free booklet tells of 9 DULUX money saving advantages. Send for "DULUX, THE NEW MILL WHITE" and read all about this remarkable new Du Pont product. Address E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.

DU PONT

DULUX MILL WHITE

REG. U. S. PAT. OFF.

Sales Builders for SOUTHERN TEXTILES

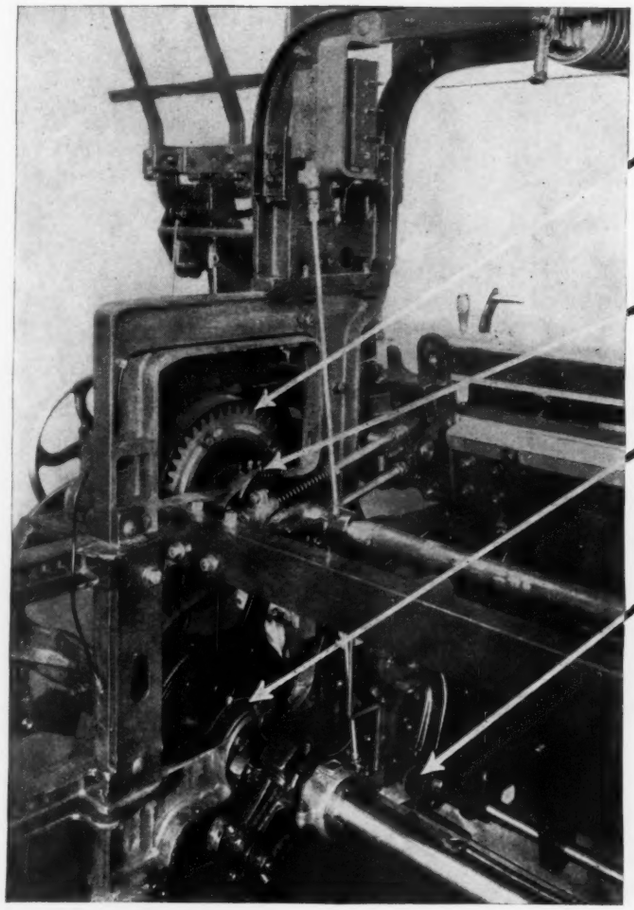
New Designs
Reproductions

GJA

LABELS • TICKETS
BANDS • HANG TAGS •
BOLT ENDS • RIDERS • •

JACOBS GRAPHIC ARTS COMPANY
CLINTON___SOUTH CAROLINA

WHY QUIBBLE — about a few dollars when you spend so much for looms anyway? Why not get truly modern looms with Hyatt Roller Bearings at all important positions as shown by this section of a modern Crompton & Knowles loom?



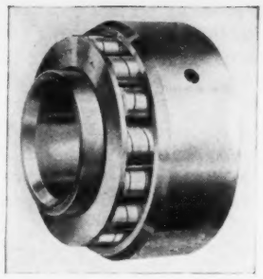
These gears stay in proper mesh because HYATT ROLLER BEARINGS are used on

CRANKSHAFT

BOTTOM SHAFT

ROCKERSHAFT

Do what loom builders may, their work will go for naught if gear centers are not held in constant alignment, or if shafts stick and bind.



YOUR COTTON LOOMS can be modern, too. Don't perpetuate obsolete cast iron bearings in new looms. Specify Hyatts and keep your new looms new for life. Hyatt Roller Bearing Company, P. O. Box 476, Newark, N. J.

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

UNCANNY ACCURACY

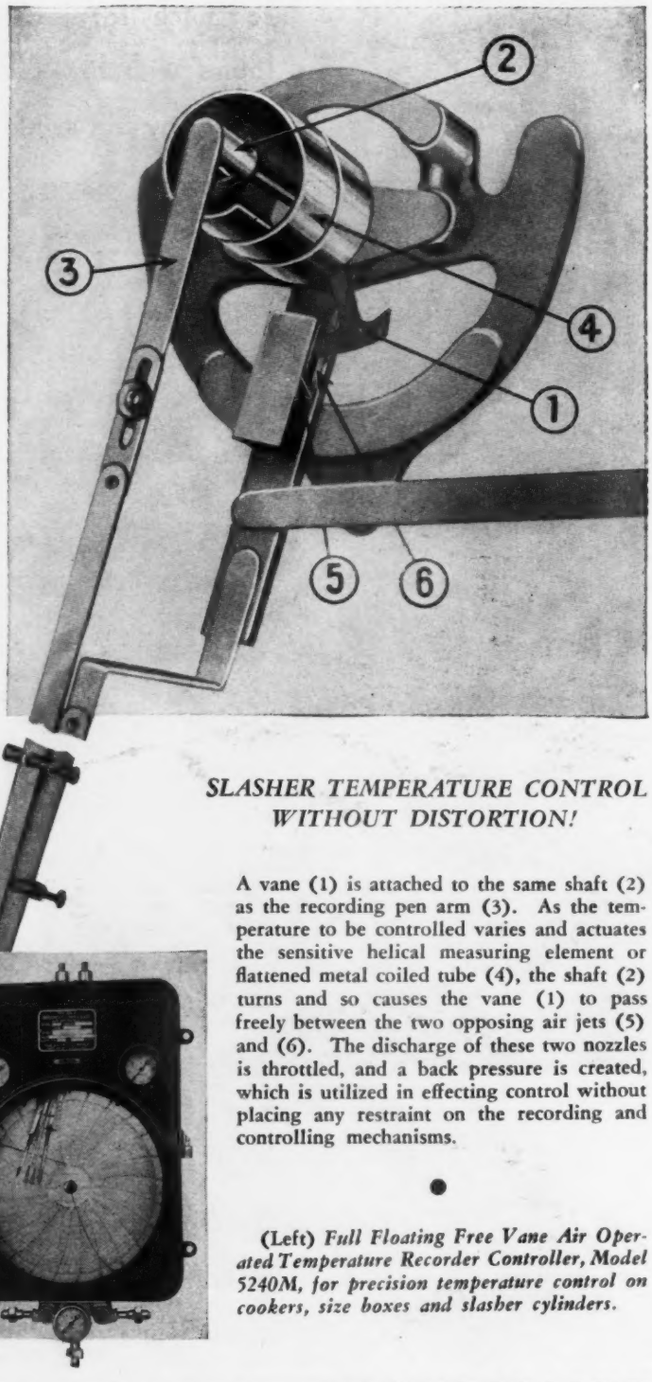
. . . . even at lowest ranges

assures precision slasher control...

MILL MEN pretty generally recognize the importance of exercising the closest temperature control on cookers, size boxes and slasher cylinders. But what is not so widely known is that a given make of controller can only be relied on to give that degree of regulation which its basic design makes possible.

For example, BRISTOL'S Full Floating Free Vane Air Operated Temperature Recorder Controller is so unique and revolutionary both in design and operation that it controls accurately at all temperatures,—even at the lowest ranges for which the forces created by temperature fluctuations are a minimum. There is absolutely no distortion or restraint either at, above or below the control point.

This is a heretofore unobtainable feature. Since the ingenious Free Vane device floats freely from one position to another, since it does no mechanical work (see description of operation at right), and experiences no resistance, friction, or interference in any way with its motion or that of the recording element to which it is attached, it regulates exactingly the process under control. In slasher applications, BRISTOL'S uncanny accuracy provides unequalled performance, economies and reliability.



SLASHER TEMPERATURE CONTROL WITHOUT DISTORTION!

A vane (1) is attached to the same shaft (2) as the recording pen arm (3). As the temperature to be controlled varies and actuates the sensitive helical measuring element or flattened metal coiled tube (4), the shaft (2) turns and so causes the vane (1) to pass freely between the two opposing air jets (5) and (6). The discharge of these two nozzles is throttled, and a back pressure is created, which is utilized in effecting control without placing any restraint on the recording and controlling mechanisms.

●

(Left) *Full Floating Free Vane Air Operated Temperature Recorder Controller, Model 5240M, for precision temperature control on cookers, size boxes and slasher cylinders.*

THE BRISTOL COMPANY — WATERBURY — CONNECTICUT

Branch Offices: Akron, Birmingham, Boston, Chicago, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco

TRADE MARK

BRISTOL'S

REG. U.S. PAT. OFF.

PIONEERS IN PROCESS CONTROL SINCE 1889

LUBRICATION THAT IS

Controlled... Definite... Efficient!

★

How Alemite Lubrication Earns Profits Through Maintenance Savings!

THERE must be sound reasoning back of the fact that the leading mill operators have adopted a complete program of Alemite Lubrication. There is!

Alemite Lubrication System PLUS Alemite Industrial Lubricants *have saved and are saving* millions of dollars in the textile industry—in waste—in spoilage—in expensive breakdowns and repair bills.

Alemite savings, as reported by leading operators, are of five kinds:

1. ***Lubricant Savings.*** Instead of lubricating once a day with oil, lubrication is necessary only once in 3 weeks with Alemite Industrial Lubricant. One pound does the work of 3 gallons of oil.
2. ***Labor Savings.*** Fewer operations and much less time per operation.
3. ***Spoilage Savings.*** Alemite Lubricant cannot run out of Alemite Fittings. Nothing to cause spoilage in thread, yarn or fabrics.
4. ***Maintenance Savings.*** Alemite Lubricants lubricate constantly, definitely and efficiently, thus saving the unnecessary breakdowns and repair bills, 80% of which are traceable to faulty lubrication.
5. ***Power Savings.*** Alemite Lubrication reduces friction drag tremendously—therefore saves in power consumption.

Two Types of Fittings Particularly Adapted to Textile Machinery!

Alemite Push-Type Fittings today are standard lubrication equipment in the biggest mills in the country. Easily and quickly installed, they are justly celebrated for saving 200% of their cost the first year of use.

Alemite's New Hydraulic Lubrication System Fittings recommend themselves for textile machinery use, also. These fittings have a nipple which is serviced through a special coupling which grasps it firmly—cannot let go so long as pressure is applied—the greater the pressure, the tighter the seal. Pressures up to 8,000 pounds per square inch can be developed with an Alemite Hand Gun. It is easy to see the advantage of this high pressure in forcing out the old, worn lubricant and forcing in a complete renewal of fresh lubricant.

Send Coupon for Complete Details

The vitally important story of savings made possible through Alemite Lubrication is too great to print here. The coupon or a note from you will bring complete information. No obligation whatsoever.

Alemite offers you consultation on lubrication problems, also entirely without obligation. Avail yourself of this by all means, for you will be shown the way to increased profits through maintenance savings.

SEND COUPON FOR COMPLETE DETAILS →

C-4

Alemite Corporation
1884 Diversey Parkway, Chicago, Illinois.

Gentlemen: Please send me complete information on (please check) ☐ Alemite Push-Type Fittings. ☐ Alemite's New Hydraulic Lubrication System Fittings. ☐ Arrange Lubrication Consultation.
(Check item interested in)

Name.....

Company.....

Your Position.....

Address.....

City..... *State*.....

Do Ball Bearings PAY

Ask Spinning Frame Users

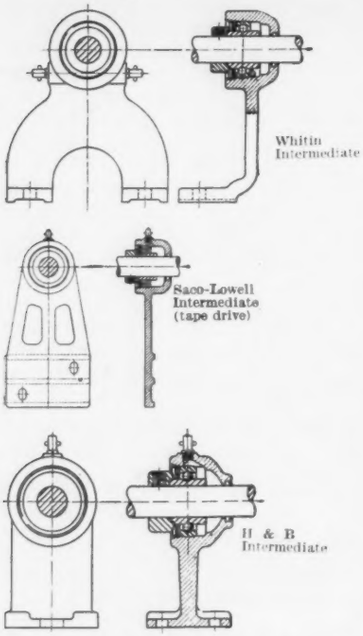
Here's what two typical Fafnir customers found:

One mill installed Fafnir Ball Bearing Spinning Frame Boxes on 4 frames and changed 7,200 oilings per year into 96 greasings. By saving $32.52 in lubrication and labor and $127.60 per year in power costs, the equipment paid for itself in less than two years.

Another invested $5000 in 776 Fafnir Spinning Frame Units. A test of power input to the motors measured by an Esterline Graphic Wattmeter showed savings which returned the cost in a little over one year. When lubrication and labor savings were added, the annual return on the investment was 145%.

Fafnir Ball Bearing Spinning Frame applications are sound investments!

Why YOU Should Select FAFNIRS



Three Typical Spinning Frame Box Installations

The inner rings of Fafnir Wide Inner Ring Ball Bearings are bored to inch dimensions, fit standard shafts firmly by means of the self-locking collar without necessity of locknuts, shaft shoulders and special adjustments. Thus they are easier to apply. Fafnir has further capitalized that engineering advantage by developing special housings for the spinning and twisting frames. A few of these are shown below. Mill men are urged to consult the special Fafnir Textile Catalog, where Fafnir-designed applications for many models of Whitin, Saco-Lowell and H & B Frames are described and diagrammed in detail. Fafnir Ball Bearing Spinning Frame and Twister Boxes fit your machines without alterations, giving you ball bearing efficiency with plain bearing simplicity.

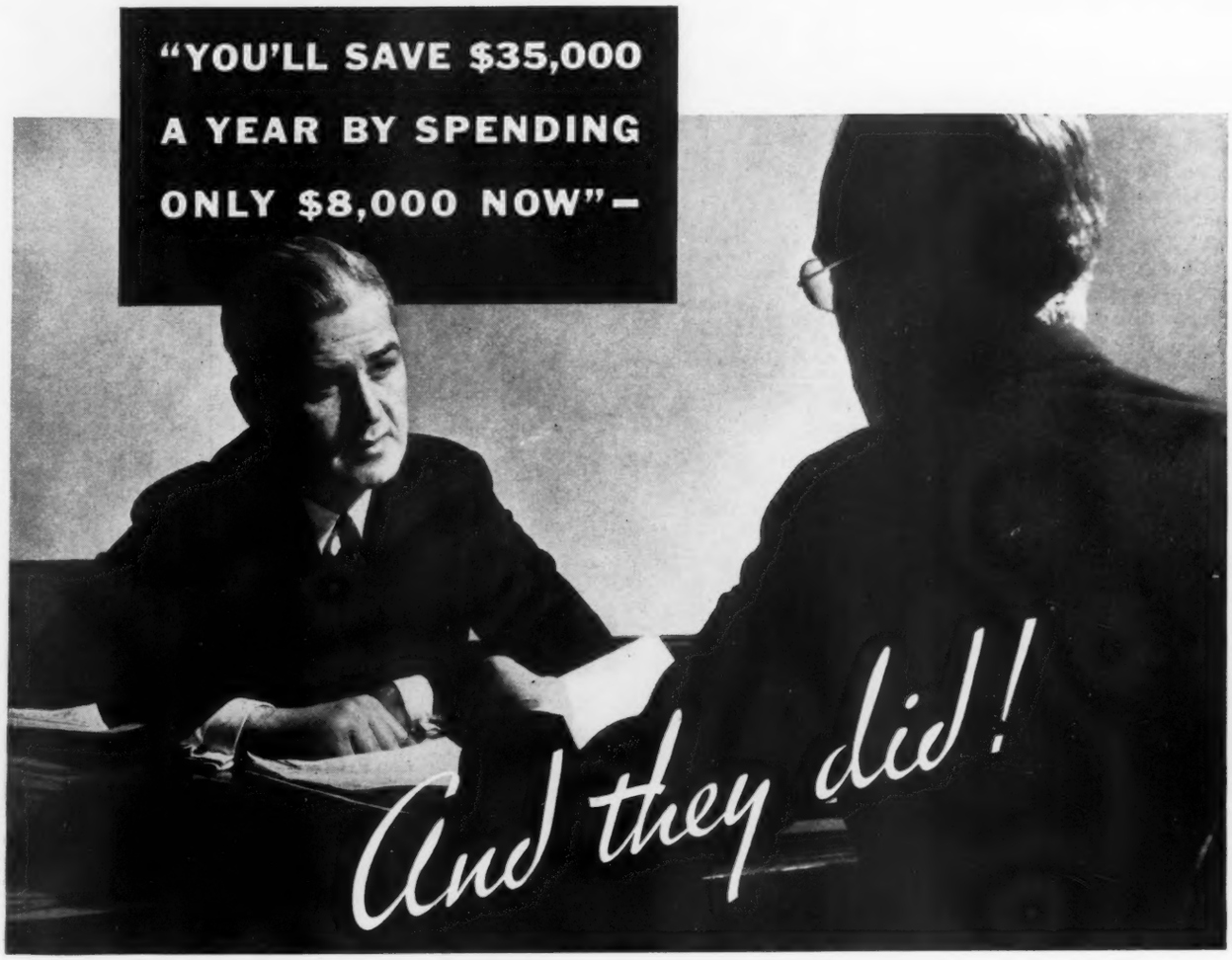
THE FAFNIR BEARING COMPANY, New Britain, Conn.

Representatives also at

Atlanta, Ga. Charlotte, N. C. Dallas, Tex. Houston, Tex.
Boston, Mass. Birmingham, Ala.

Safeguarding Quality

FAFNIR BALL BEARINGS



First of a series of true stories in the experience of Taylor Representatives, telling how they met, and answered, the needs of the Textile Industry for temperature and pressure instruments. Learn how Taylor Control can be put in your mill, too.

THERE was a rumor that a northern textile mill was considering installation of instruments for more complete control of temperature. "That means me," said a Taylor representative, as he boarded a train.

When he arrived, the superintendent and the managing director of the mill asked, "What can we do?"

"I don't know" said the Taylor man frankly. "Let me look around!"

He found out the class of goods made there, the production of the mill, the number of machines, the number of looms to each weaver, and a lot more.

"What now?" asked the superintendent when he returned.

"The control we can give you will cost about $8,000. I estimate that you will save around $35,000 a year with it. Your finished goods will be more uniform, your loss through spoilage will be cut to a minimum, and you will be able to hold to production standards with a minimum amount of labor."

Taylor Slasher Control System was put in. After two years the managing director said it was the best investment he ever made. The saving had run between $33,000 and $35,000 a year.

★ ★ ★

Taylor Representatives sell results—not individual temperature instruments. They sell the ability of Taylor engineers to install a complete, thoroughly efficient and automatic system of temperature control.

The Taylor System of Slasher Control is a notable example of this service. This is the proper application of indicating, recording, and regulating temperature instruments to every step in the slashing process, from composition of the size to the final drying of the yarn. Its results are increased loom production, decreased labor cost of weaving, improved quality of the product, uniformity of weight in the goods, and decreased cost of the size mix. Where this system has been installed, it has generally paid for itself in about a year.

What about your own mill? This is the time to remove every cost hindrance and smooth the way for uniformly higher quality goods than ever before. Let a Taylor man look into your plant now. Remember, his concern is to help you.

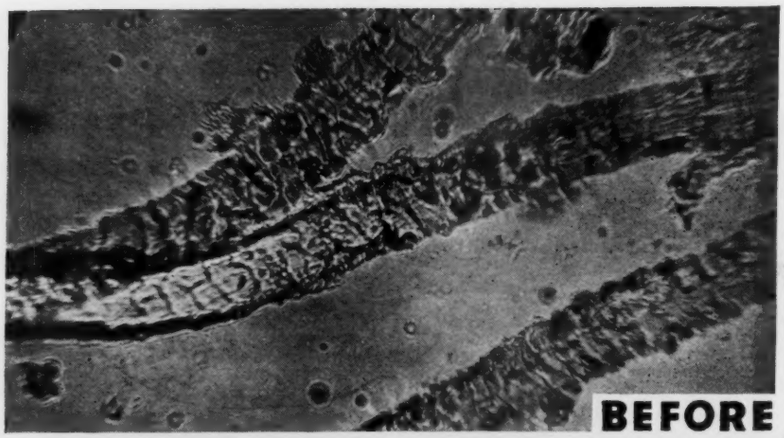
Let us send you a folder describing this Taylor System of Slasher Control. But send for the Taylor Man anyway. Write for both to the Taylor Instrument Companies, Rochester, New York, or to our Branch Offices in Atlanta, Boston, and Toronto, Canada.

Taylor

Indicating | Recording • Controlling

TEMPERATURE *and* PRESSURE INSTRUMENTS

The name Taylor now identifies our complete line of products, including Tycos instruments.



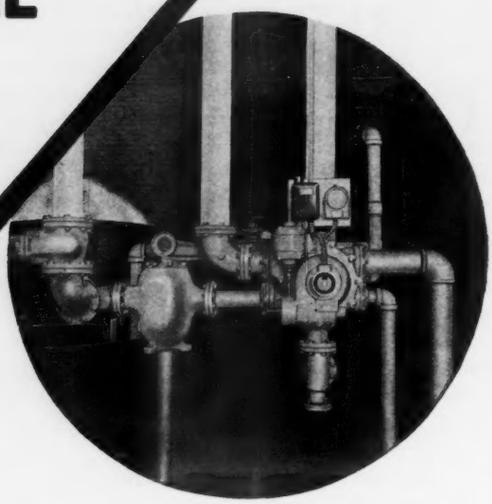
Cotton, wool, silk or rayon — whichever you work with, you depend on large supplies of water for cleansing fibres. And practically all natural water supplies contain "hardness," so that when soap or alkalies are added to the water, sticky insoluble *curds* are formed by chemical reaction.

Later on these curds make trouble—spotty, streaky and uneven dyeing, dull shades, and harsh goods. In spite of the greatest care, best results cannot be obtained if curds have damaged the fabrics.

The cure for curds? A Permutit Water Softener reduces all your water to zero hardness—leaves it clean, absolutely soft . . . uniform. This one feature fully justifies the installation of Permutit. In addition, you usually save enough on soap and soda to pay for Permutit in a year or so. Boiler scale, too, is reduced to zero—saves the cost of cleaning, of tube replacements and repairs. These savings, however, are incidental to the real reason for Permutit — *safeguarding quality.*

Write for a copy of our free booklet, "Reducing Textile Costs and Troubles." Let us show you how to save money and perfect quality with Permutit Equipment. Send for it today—no obligation. The Permutit Company, 330 West 42nd Street, New York, N. Y.

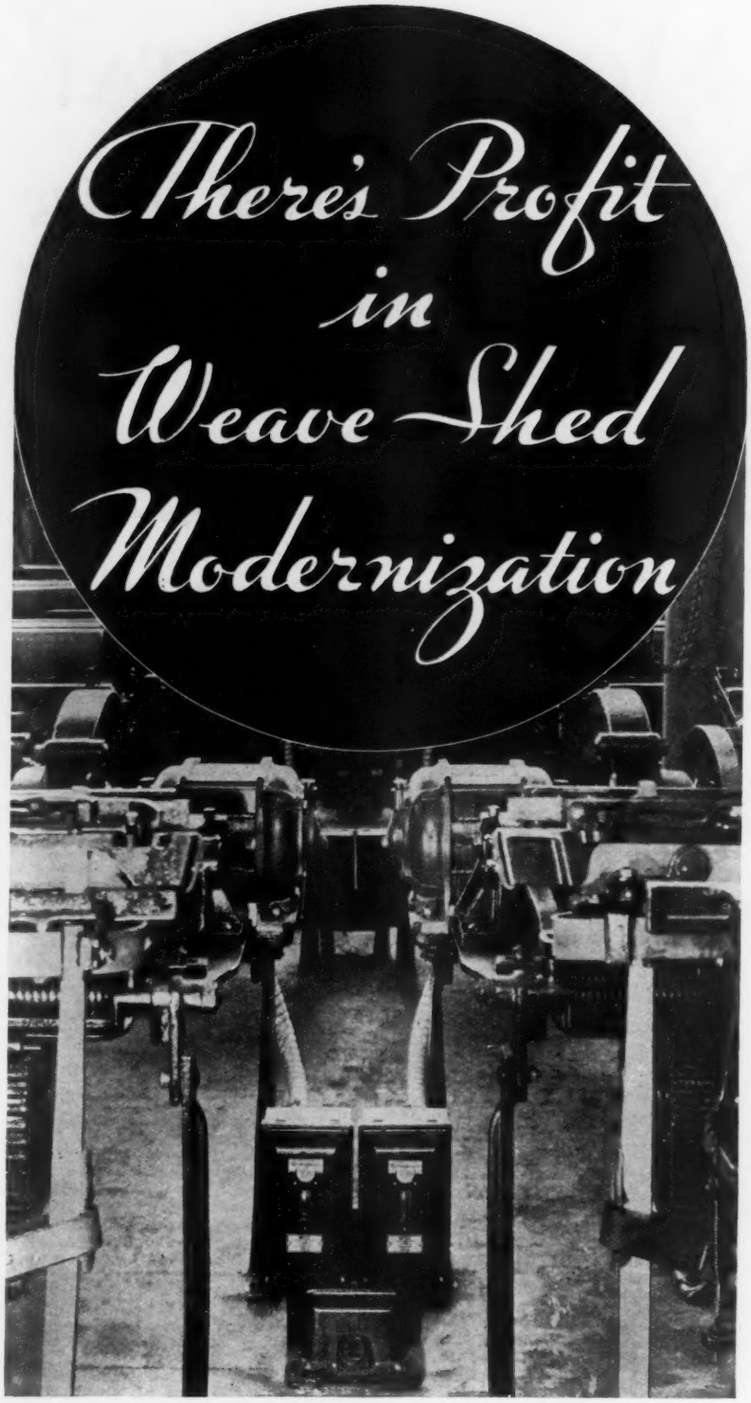
THE CURE FOR CURDS



Permutit

Water Treating Equipment

There's Profit in Weave Shed Modernization



Weave shed of a large Southern cotton mill using the new Westinghouse Loom Drives. Note the neatness and compactness of the drive.

THE weave shed is a logical starting point for a modernization program. Any saving effected in this department will represent a considerable reduction in the total cost of finished cloth.

The modern Westinghouse Loom Drive is made to order for the latest types of looms.* With its new and improved mechanical and electrical characteristics, the Westinghouse Loom Drive matches them perfectly—in economy—in sturdiness—and in efficiency.

Motor

The motor has great mechanical strength to withstand vibration. It has liberal capacity for breaking-in new looms and is enclosed to exclude lint. Windings are triple-guarded from moisture. High efficiency and power factor assure lowest power costs.

Starting Switch

The starting switch provides the highest degree of overload protection for the motor, yet eliminates the expensive production delays caused by a blown fuse or link.

There are other important cost-saving features of the Westinghouse Loom Drive that will appeal to textile mill executives who are seeking reduced weave shed costs. Call or write our nearest sales office, or simply mail the coupon.

**Such as the Crompton and Knowles "Cotton King," "Super Silk" and automatic HIGH-SPEED worsted looms—and the Draper Models "X," "C," "R" and "HC."*

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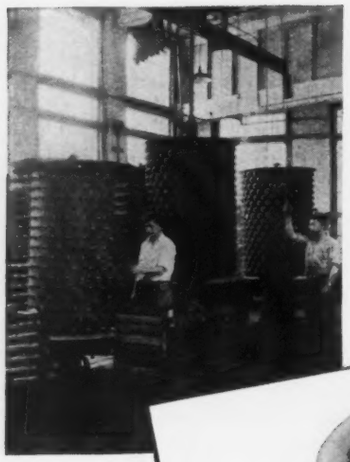
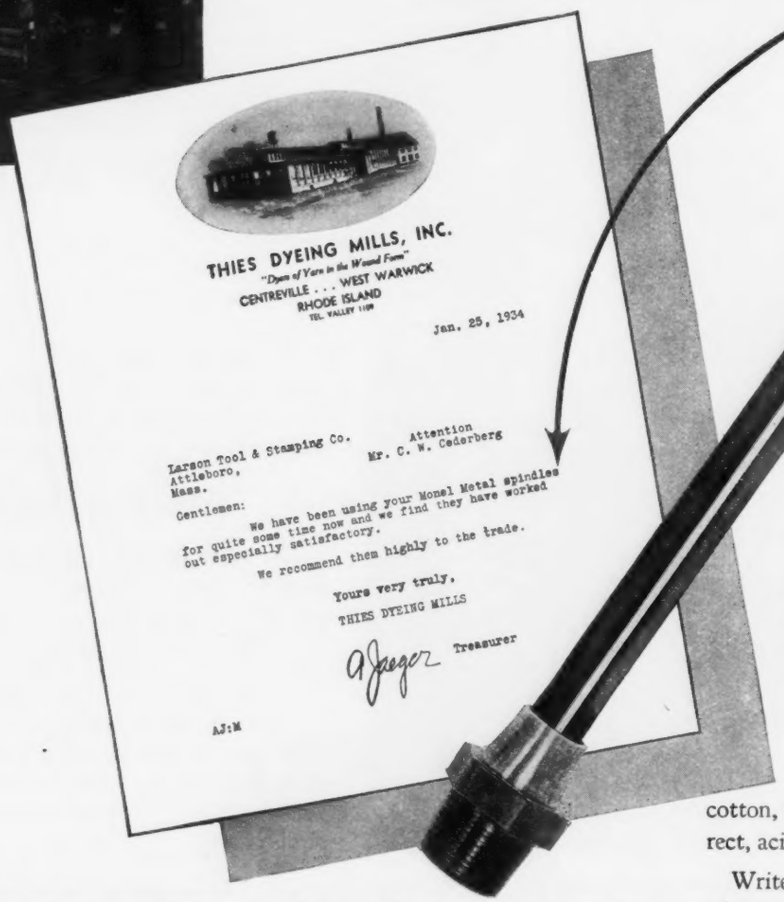
NEW *solid type* MONEL METAL *Tri-sectioned* SPINDLE *for Package Dyeing*



Made by Larson Tool and Stamping Co.
Used by Thies Dyeing Mills, Inc.

Found "Especially Satisfactory"



THIES DYEING MILLS, INC.
"Dyers of Yarn in the Wound Form"
CENTREVILLE . . . WEST WARWICK
RHODE ISLAND
TEL. VALLEY 1109

Jan. 25, 1934

Larson Tool & Stamping Co.
Attleboro,
Mass.

Attention
Mr. C. W. Cederberg

Gentlemen:

We have been using your Monel Metal spindles for quite some time now and we find they have worked out especially satisfactory.

We recommend them highly to the trade.

Yours very truly,
THIES DYEING MILLS

A Jaeger Treasurer

AJ:M

Above, on the left, is a view of the package dyeing equipment at Thies Dyeing Mills, Inc., West Warwick, R. I. On the right is the kind of Larson Monel Metal spindle this plant is using. The Larson Tool and Stamping Company of Attleboro, Mass., are specialists in the manufacture of spindles of Monel Metal for every type of package dyeing... yarns, roving, slubbing... as well as for tinting.

● 1800 of Larson's new solid type spindles are used for package dyeing in the Thies Plant, West Warwick, R. I.

They're made of Monel Metal. For they have to withstand rough handling...and Monel provides the tough strength they need.

In addition, Monel Metal is absolutely rust-proof and corrosion-resistant. Its smooth, close-grained surface permits rapid and thorough removal of dyestuffs when changing colors. Monel Metal reduces repair and replacement costs. It is durable.

In short, these spindles are made of Monel for the very same reasons that it is used in other equipment for severe dyehouse service...for dyeing silks, cotton, rayons and woolens, with direct, acid, vat, basic or sulphur colors.

Write us the dimensions and type of spindles you now use and we will have complete information and prices sent you...as well as our pamphlet, "Dyeing Yarns in Package Form".

• • •

Visitors to the Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 23-27, who are interested in the use of corrosion-resistant materials are cordially invited to inspect the Monel Metal and Nickel Alloys exhibit at Booths 13 and 14.

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Monel Metal

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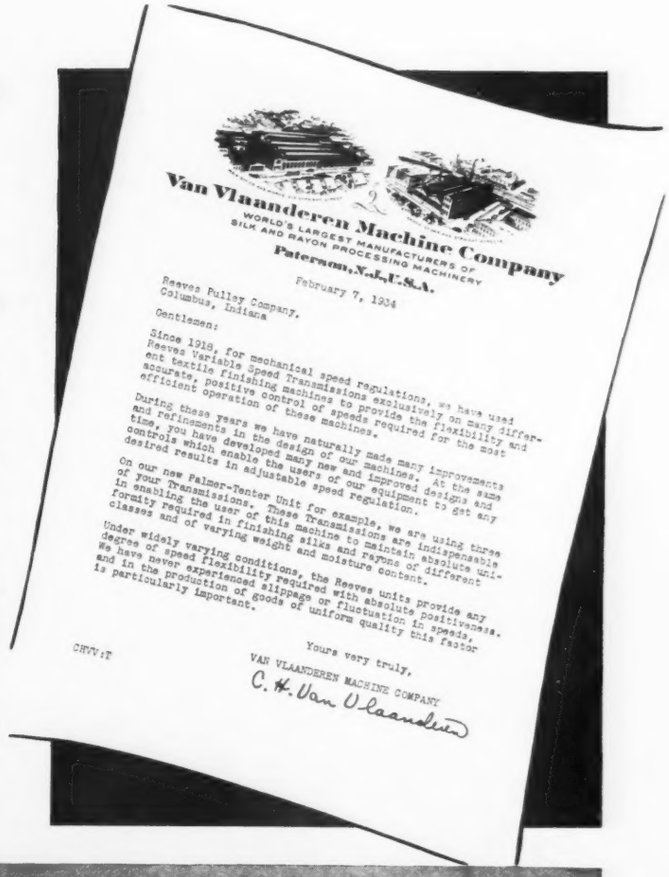
The REEVES Transmission applied to tenter provides speed control for entire machine—meeting the constantly changing requirements of different types of goods in process. REEVES units at the quetsch, and at the palmer, compensate for stretch or shrinkage in cloth and synchronize operations of the machine as a *smooth,* complete unit. *Any speed* for *any job* is at *instant command* of operator. No waste of time—no pulley or gear changes—no interruptions in production flow.



Van Vlaanderen Machine Company
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Paterson, N. J., U.S.A.

February 7, 1934

Reeves Pulley Company,
Columbus, Indiana

Gentlemen:

Since 1918, for mechanical speed regulations, we have used Reeves Variable Speed Transmissions exclusively on many different textile finishing machines to provide the flexibility and accurate, positive control of speeds required for the most efficient operation of these machines.

During these years we have naturally made many improvements and refinements in the design of our machines. At the same time, you have developed many new and improved designs and controls which enable the users of our equipment to get any desired results in adjustable speed regulation.

On our new Palmer-Tenter Unit for example, we are using three of your Transmissions. These Transmissions are indispensable in enabling the user of this machine to maintain absolute uniformity required in finishing silks and rayons of different classes and of varying weight and moisture content.

Under widely varying conditions, the Reeves units provide any degree of speed flexibility required with absolute positiveness. We have never experienced slippage or fluctuation in speeds, and in the production of goods of uniform quality this factor is particularly important.

Yours very truly,
VAN VLAANDEREN MACHINE COMPANY
C. H. Van Vlaanderen

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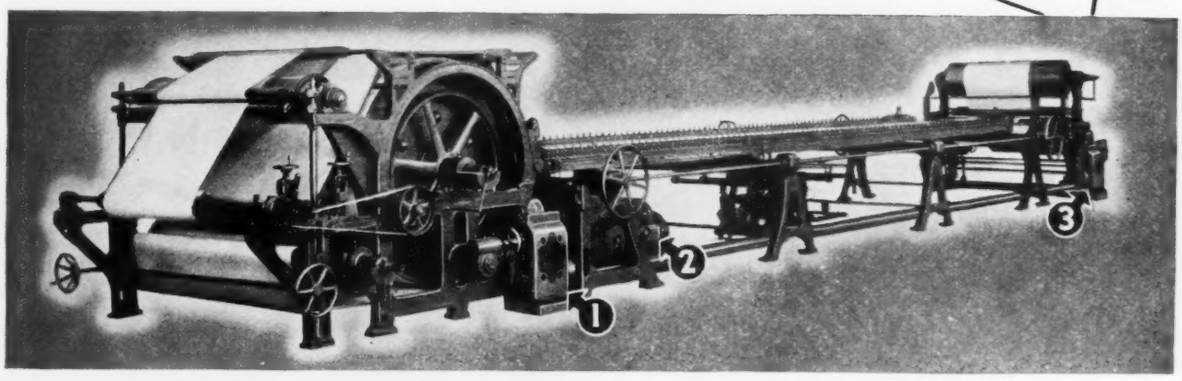

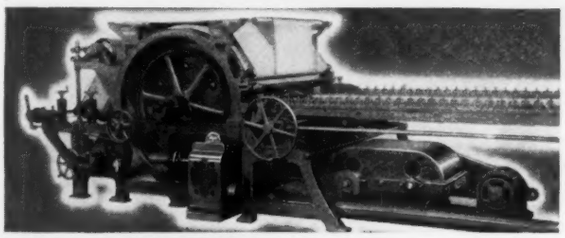

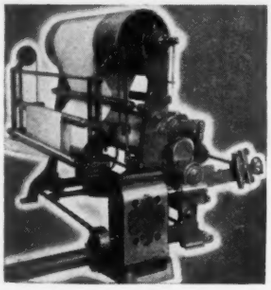

Top—1. REEVES Vertical Enclosed Design Transmission controlling Palmer. 2. REEVES Horizontal Enclosed Design at Tenter (main drive for entire machine). 3. REEVES Vertical Enclosed Design Transmission controlling quetsch.

Center—Showing REEVES drives at palmer and tenter frame. Note compactness, which enables this modern palmer-tenter unit to conserve floor space without sacrificing drying surface.

At left—Hook-up of REEVES, with mechanical automatic control, to quetsch.

On a REEVES-equipped machine, the *correct speed* for *every* changing requirement is *instantly secured* and *accurately* maintained, whether control is by operator or entirely automatic. . . . Made in a complete line of sizes, designs and speed ranges—with the most efficient type of control for any specific need. Easily and quickly installed on beamers, warpers, slashers, calenders, garnetts, printers or almost *any* machine in the textile industry. . . . For quick facts on any application, write REEVES engineers. No obligation.

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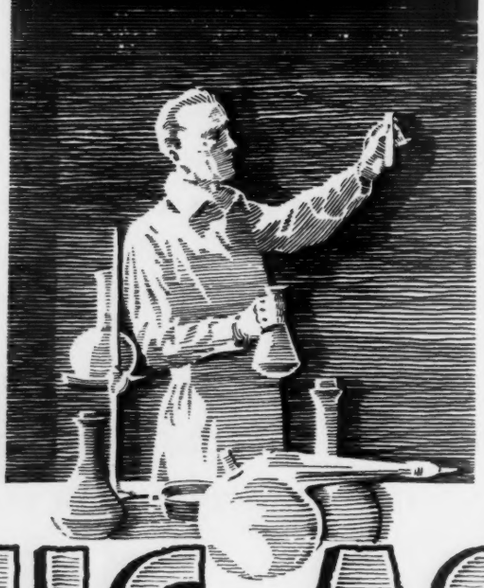

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¶ Waltham Pickometers are unconditionally guaranteed against defects in workmanship and materials. The 80 year Waltham reputation is a guarantee of their accuracy.

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Vol. 98

COTTON

No. 4

April, 1934

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director

ROBERT W. PHILIP, Editor

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Vol. 98
No. 4

COTTON

April,
1934

An Analysis of Various Kinds of Waste in the Mill

By Charles D. Honiker

Fulton Bag & Cotton Mills, Atlanta, Ga.

THE subject of waste is of the most importance; waste comes from so many different sources and has such a tremendous bearing on what we are trying to accomplish that it cannot be given too much study. The subject strikes me first that fiber waste is considered the most important, but there are other wastes in the mill that are equally important which are not perhaps evaluated in their extent, such as power, labor, time, and space waste.

Fiber wastes are what we are usually talking about. In cotton wastes, excess moisture is frequently a source of heavy loss. We have made a great many tests on the contained moisture of cotton fibers. Not less than 30 bales were sampled in any one year, and those sampled were considered a fair cross-section of that season—both Eastern and Western cottons included. The maximum, minimum, and average figures shown by these tests, covering the percentage of moisture content over eight years, are:

PERCENTAGE MOISTURE CONTENT OF COTTON

	1923	1924	1925	1926	1929	1930	1931	1932
Max.	13.81	17.56	10.42	14.50	14.20	13.70	10.40	10.80
Min.	6.20	5.03	5.74	7.42	6.70	5.50	5.60	5.90
Avg.	9.18	10.69	7.76	9.89	10.17	8.86	7.60	7.88

It will be noted that the maximum percentage is about 17½ per cent, and the minimum, 5 per cent. That was in 1924. The last three years show a minimum of 5-5½ per cent. The average is about 7½ per cent. In five of the years listed, the average was considerable above this figure. The figure of 7½ per cent has been accepted by various associations as a fair basis on which to calculate excess losses. Each of the years covered shows a considerable excess above the 7½ per cent for the average condition, so we feel that 7½ per cent is reasonable for a standard.

We have weighted the figures in all of the tests for Georgia Upland cotton. Georgia cotton as a rule shows less moisture than the Western cotton. As a rule, the Western cottons do not come on the market until late in December and by that time the weather has gotten bad which is a large determining influence on the excessive moisture content.

The cotton this year from that territory is showing from 10½ to 12½ per cent moisture.

Another part of the waste of cotton that is very seldom considered or weighed and evaluated at its proper figure is the sand and dirt which drops out. Sand and dirt sometimes make up ½ to 1½ per cent of hand-picked cotton and in sledded stock there is usually much more than this. The following table gives the results of tests covering several years' work (no cotton lower than Good Ordinary or better than Strict Middling was used):

WASTE	Min. %	Max. %
1. Moisture (above normal)	1.50	3.50
2. Sand and dirt	.50	1.50
3. Parts of bolls, seed, hulls, leaves, stems, etc.	1.75	5.00
4. Fibers with nips and kinks 5. Short fibers and dust	4.00	6.00
6. Thread and cloth	1.50	2.50
7. Sweepings	1.50	2.00
TOTALS	10.75	20.50

During the determination of waste factors for the Revenue Department, the subject of waste was brought to our attention forcibly, and the figures that were finally adopted came somewhere within the range of those I have given you.

There are other wastes of as much importance as those of cotton. Among the preventable wastes are those arising from worn-out rolls. In a certain mill, a caliper was used on all steel rolls—the roving and spinning frames were carefully measured for diameter of the drawing sections of the fluted parts—and the shrinkage due to long use and excessive scourings amounted to 1 to 2½ per cent. The steel used in the older rolls was considerably softer than that in new rolls. The rolls tested must have been old rolls; 2½ per cent shrinkage in diameter will give heavy yarn, less drafting, less production, and you are paying full price for it; this resulted in a direct loss at full cost for labor, power, maintenance, etc., besides the production loss.

Another source of waste is through improper filling of loom beams. In another instance, loom warp beams of a certain size averaged slightly under ⅞ full, and were only 70 per cent of the weight of a beam which the looms in that department would

A discussion presented at the Atlanta meeting of the Textile Operating Executives of Georgia, March 17.

take. The labor loss in tying-in alone was over $6.00 per day as a result.

There is another loss which would come under the classification of time waste. The correct *time* for doing things has been so seldom known that many operations have in the past been over-manned by as much as 100 per cent. The time required for various operations is being studied very extensively and this has been true for the past several years. Fifteen or twenty years ago very little attention was paid to that. As conditions became adverse, time studies were made, and not only time studies, but operation studies. A figure that has never been analyzed thoroughly is what does a doffer do with his time. The actual removing of the full bobbins and replacing of empty ones takes 8 minutes per 1,000 bobbins for an average; in an hour's time a doffer will average about 1,000 bobbins; where does that 52 minutes go, outside of the time required to empty the truck etc.? In one instance the work was analyzed and a change was made and it was found that four doffers were sufficient to take care of a job where they had been using seven.

Now, as a commentary on what might be called ancient history, in 1900 this same section used 12 doffers, perhaps 13 to 15 years old.

There is another instance of loss of time and excessive labor. In a certain mill there were 500 looms using seven hands to lay up filling and picking up empty quills. The filling counts averaged about 23s and the bobbins ran from about 8.5 to 6.5 minutes in the shuttle. About 1912 the management hired two young Tech boys and instructed them how this work should be done, and they were put to work. They were not hampered by tradition or precedent, and so worked at a more reasonable pace than those so bound. Observation and calculation showed that 1½ hands on this job should keep it up. A wage rate increase was put into effect, and two operatives maintained the work from then on. In another case, the quill cans that set on the looms would hold about three or four quarts of bobbins; they put in some to hold a half-bushel, and saved some of the re-fillings necessary.

Many more instances could be named where *time* was the largest waste factor in the equation. At wage rates prevailing today, the mills which have not reduced *this* waste stand to lose greatly, especially as many of the operations now least efficiently organized were in the past carried on by lower paid or sometimes even a "pensioner" class.

It is possible to plan production on any *reasonable* schedule, so that the number of hands necessary on every operation from opening to cloth room will be known. This number can be set up as a basis, and deviations from it can be charted from time to time to show Quality of Help, Quality of Cotton, and Condition of Equipment, all of which affect the cost.

Plans Developing for Southern Textile Exposition

Notwithstanding the ups and downs in the textile industry since the autumn of 1932, when the last Southern Textile Exposition was held, the officers of Textile Hall Corporation have maintained a steady confidence in the ultimate increase of prices, and they have been industriously working on their plans for the eleventh Southern Textile Exposition which takes place in Textile Hall, Greenville, S. C., the week beginning October 15.

W. G. Sirrine, president and general manager of the exposition, announces that prospects are for a large and interesting show. He says it is possible that the attendance of buyers may be equal to or exceed that of any similar undertaking in the past. "We are optimistic over the outlook," Mr. Sirrine said, "because of the encouraging signs in the textile sky. The consumption of cotton, wool, silk, and rayon products last year aggregated 3,624,500,000 pounds, an increase of 23.9 per cent over 1932. With the exception of the boom years when spending was unreasonable these are the highest figures known in the trade.

"It is difficult to secure permission in Washington for the building of a new plant, but it is easier to obtain a permit to install new machinery, to replace old or out-of-date equipment. Never before in the history of the textile industry has it been so necessary. In this way competition can be successfully met.

"Manufacturers must advertise what they have to sell. Those who bring to the attention of mill men the new and improved and the time proven machinery, or whatever else they have to sell, will be the most likely to make sales. The Southern Textile Exposition is a great advertising opportunity, occurring only once in every two years. Here buyers and sellers meet upon common ground. The executives and their superintendents, department heads and operatives come ready to see and willing to listen."

* * *

Textile Fiber Prices Up From 1932 Low Levels

Activity in general business and in the textile industry registered further gains during January, and indications are that "for the next couple of months, at least, general business activity will continue to increase rather strongly," states the Textile Organon, published by the Tubize Chatillon Corporation "While believing that the textile curve also will advance in this period," continues the paper, "we do not think that the advance in this industry will be as strong or sustained as the indicated increase in general business."

In connection with the recent advance in textile fiber prices, the Organon states that "the remarkable increase in cotton prices since the lows of 1932 is outstanding among all the fibers." During February cotton prices entered new high ground since 1930, with cotton prices advancing faster and farther than wool prices. "If the cotton processing tax of 4.2 cents per pound is added to the cotton quotations since August 1 last year, the equivalent price of raw cotton on March 1, was nearly 16.5 cents per pound, an increase of 225 per cent from the 1932 low price of 5 cents per pound. By contrast, wool has increased 140 per cent from its 1932 low, rayon has increased 18 per cent from its 1932 low and silk prices are up 30 per cent in the same comparison."

Commenting upon the activity of the rayon markets during February, the publication adds that "the index of average daily rayon deliveries in February is calculated to be 415, which represents a small increase over the January figure of 388, this increase being entirely due to the fewer working days in February. The February index represents a substantial increase over the index of 293 for that month in 1933, however.

DIRECT CURRENT MOTORS on Textile Finishing Machinery

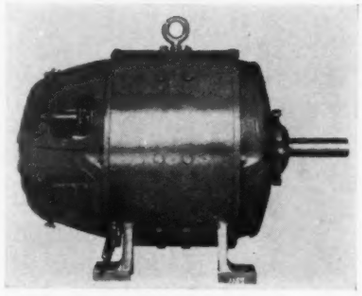


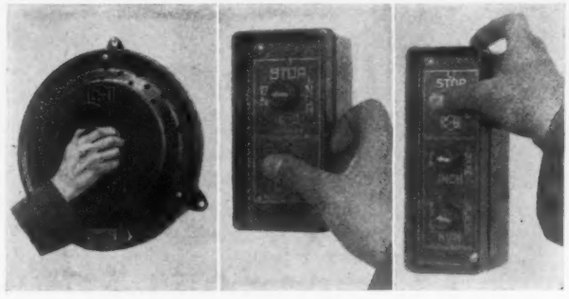
Fig. 1. A D-C motor . .

By Paul W. Arnold

Development Engineer, The Reliance Electric & Eng. Co.

IT IS not necessary to tell designers and operators of textile finishing plants that they need adjustable-speed drives for many of their machines. Ever changing styles require all kinds of materials and the finishing plant must be able to handle any of them. Some must be run at slow speeds while others can be handled faster. For economy of operation, particularly in these days of limited machine hours, it is desirable to run at the maximum permissible speed and, with the proper driving equipment, such can be easily accomplished.

There are two general classes of adjustable speed drives available, one mechanical, the other electrical. The second may be divided into two classes, one alternating current, the other direct current. This discussion will concern the direct current drives. Some readers may already wonder of what interest direct current drives are in mills with only alternating current available, but experience has taught many operators that a-c can be converted to direct



Photos, courtesy Reliance Electric & Eng. Co.

Fig. 2. Rheostat and starter; Fig. 3, three-button starter . . . . . .

current economically and individual investigation will prove this true in most cases.

Three different kinds of drives will be discussed, first, single motor drives for individual machines; second, multi-motor drives for single machines and, third, multi-motor tandem drives for machines operating in ranges.

There are several machines that are advantageously driven by d-c adjustable-speed motors. Among them are brushers, singers, dye padders, print machines, back gray washers, and various types of calenders. This is far from a complete list but it is representative.

The d-c current equipment required to drive these machines is simple. Figure 1 shows a d-c motor which is belted, coupled, geared or chained to the machine. The operator has before him the push button and rheostat illustrated in Figure 2. He has the entire control at his finger tips for he can "inch" goods through his machine by starting up, then push the start button and run. The desired operating speed is obtained simply by turning the rheostat

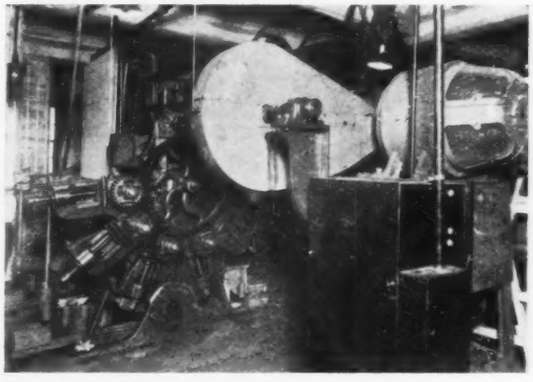


Fig. 4. Silk printing machine . . . . .

handle. These control units can be located wherever they best suit the operator's convenience. The speed variation obtained may be over a range as high as 6:1 which takes ample care of all requirements.

The problem of the printing machine drive is a little different than that of other machines mentioned. It is necessary to have a low speed of about 10 yards per minute for threading and color matching with high speeds over a wide range, for actual printing. Quick stopping is a desirable feature which is provided by dynamic braking. As far as the motor is concerned it looks exactly like that shown in Figure 1. The speed is controlled by the same simple rheostat. A three-button push-button station is used and the operator can quickly master it. Push the inch button (Figure 3) and run as long as desired at the 10-yard speed. When ready to run in production, the operator presses the run button and the motor smoothly accelerates the machine to the predetermined printing speed. To stop—merely push the stop button and the machine comes to a

quick smooth stop. Figure 4 shows an installation of a d-c print machine drive.

The next group, individual machines with multi-motor drives might be made a very long discussion in itself. We will include only a few typical cases which no doubt will suggest other similar schemes.

The two-motor drive for the modern dye jigger is a very valuable contribution to the cloth finishing industry. Figure 5 shows a group drive for dye jiggers. Note the friction brakes to maintain cloth tension. These keep the operators busy maintaining any sort of a constant tension at all. Furthermore, if a constant speed motor were used to drive the group, the speed must be such that the maximum safe cloth speed will not be exceeded when the roll on the wind-up beam is full. This means that much of the time the material will be running at far less than the next operating speed with consequent production loss.

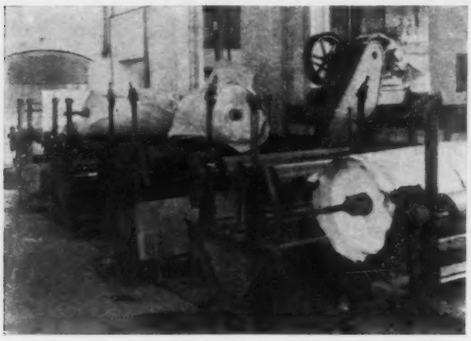


Fig. 5. Five dye jigs driven by 1 d-c motor.

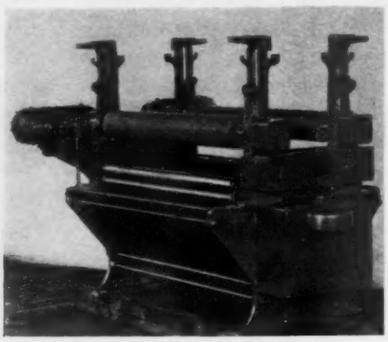


Fig. 6. A modern dye jig.

Figure 6 illustrates a modern jigger with a d-c motor coupled to each beam roll. The control provides a constant tension without friction brakes, and this is so easily obtained that the operator need pay little, if any, attention to the jigger after the original setting. The speed of the material is constant and may be set at the maximum permissible for the goods in process, thus giving increased production. The simple turning of a rheostat and pushing of start and stop buttons makes the operation so easy that one operator can tend several jiggers. In fact, the control can be so arranged that all the operator needs to do is to start the jigger, set the proper speed and tension and after a predetermined number of passes of the material through the bath have been made, it automatically stops and is ready to be re-loaded. There are machines, such as print washers, soapers, etc., that can be driven by a single motor but which can be driven more economically by multi-motor drives. The advantages are practically the same as already mentioned, that is, proper operating speeds are easily obtained and much mechanical equipment can be eliminated. Figure 7 shows an open soaper rigged with five motors, each driving a set of rolls. Note that all line shafting used to tie the rolls together is eliminated. The control scheme which keeps the material traveling at the same speed through each section is the same as used in multi-motor range drives described in the following group.

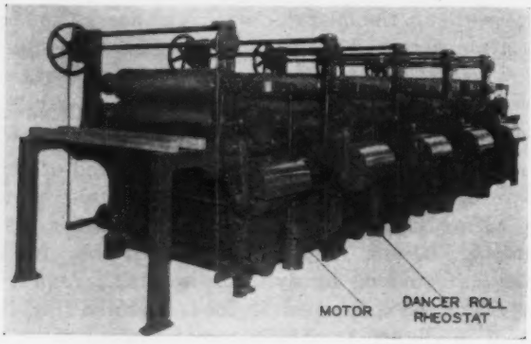


Fig. 7. Open soaper driven by 5 d-c adjustable speed motors . . . . . .

The third group of d-c equipment is that used to drive machines operating in range. Of these there are two sorts, one for use in plants with only a-c power and the other for mills with d-c power. The former is most important as it covers the requirements of most mills and will be described here.

The drive for ranges may be called a variable voltage system (sometimes called Ward Leonard System). The electrical equipment is very simple.

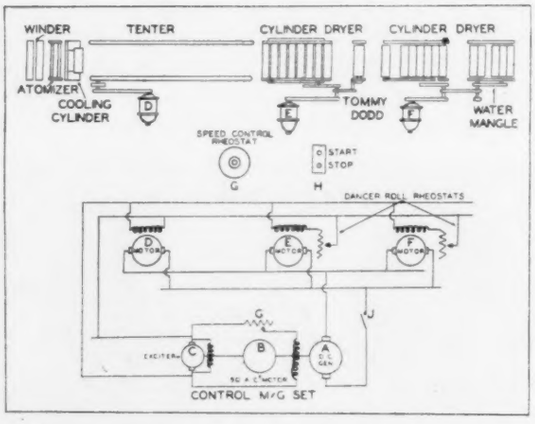


Fig. 8. Top, electrical diagram; bottom, electrical connections . . . . . .

Figure 8 shows a typical range with a schematic wiring diagram of the electrical equipment required. The control motor generator set is connected to the mill's a-c line. Power is transmitted from the d-c variable voltage generator *A*, to driving motors *D*, *E* and *F*. There may be as many of these driving motors as required.

The control consists of a simple magnetic line contactor *J* and overload relay operating each motor, a series of dancer roll rheostats which operate automatically, a main rheostat *G* and a start-stop push button *H*.

The operation of the range is as follows: The operator has before him rheostat *G* and push button *H* which are exactly as shown in Figure 2. The rheo-

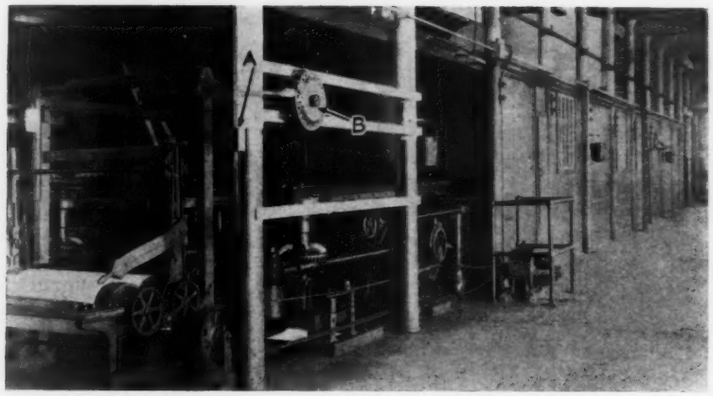


Fig. 9. The speed of all machines in this range is centered in rheostat B. Whole range started and stopped by push button A . . . . . .

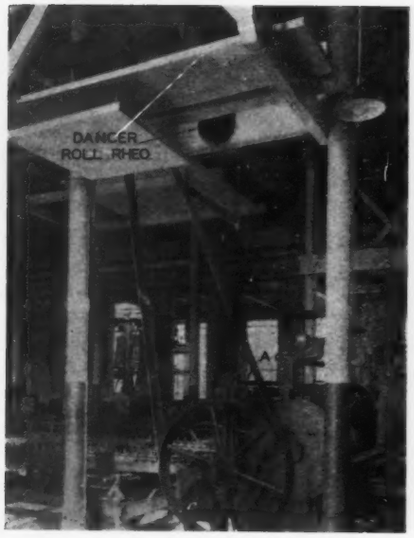


Fig. 10. The dancer roll A keeps material flowing smoothly . . .

stat handle is first turned to the low speed position and the start button is pressed. The whole range will start up at a very low speed, likely the machines will just turn over. The handle of rheostat *G* is turned until say a desirable threading is obtained, then after the material is through all of the machines the rheostat handle is again turned until the desired operating speed is obtained. The dancer roll rheostats (Figure 8) function automatically to keep the material smoothly from one machine to the next. The material may shrink or full, and motor speeds may change because of load temperature. Any of these things happening would cause the material to pile up or tear between machines. However, it passes over the dancer roll which tends to rise or fall with too much or too little material flowing past it. If the goods comes too fast it falls a little and turns its dancer roll rheostats so the motor driving the machine feeding too much cloth immediately slows down and the trouble is corrected. If the material starts to pull tight the action of course is reversed. In the typical range illustrated in Figure 8, dancer rolls would be placed between the tenter and cylinder dryer and between the Tommy Dodd and the second cylinder dryer. These would operate the dancer roll rheostats in the shunt fields of motors *E* and *F* respectively.

These are the essential functions of a d-c variable voltage range drive. They are extremely simple, yet drive the finishing machines in the ranges exactly as desired. The speed may be varied over a very wide range. Ten to one for actual operations is practical with a still lower speed for threading. Other desirable features can be added to these already described. For example, it may be desirable to operate only a part of the machines in the range, or to split it and operate in two separate parts. Some operators desire to accelerate to predetermined speeds, instead of accelerating to desired operating speeds as described. All these features and others can be easily and economically accomplished.

The operators and designers should remember that the operation is simple. Figure 9 is a photo showing the operating station of a range drive. The push button *A* starts and stops the equipment and rheostat *B* controls the speed. The dancer roll rheostat is equally simple. Figure 10 shows an actual installation. Note the rheostat is located near the motor, both of which are well out of the way.

The purpose of this article is to tell the story of d-c drives that are available for the textile finishing mills in a brief but comprehensive manner. Each installation, of course, must be studied, but it will generally be found that d-c variable voltage range drives including the control motor generator set are low in first cost for securing the desired results. It is the only drive that will give operating speeds over a four to ten to one range.

American Cotton Manufacturers Meeting, Charleston, S. C., April 18-20

Announcement is made that the annual convention of the American Cotton Manufacturers Association will be held at Charleston, S. C., on April 18 to 20, inclusive. The Frances Marion Hotel will be headquarters, with many guests staying at the Fort Sumter Hotel. The convention proper will open on Thursday morning, April 19; the session on Wednesday being of an executive nature for the board of government only. There will be an open session on Thursday, with golf and other recreations on Thursday afternoon, the banquet Thursday night, to which ladies are invited, and a business session on Friday morning. Friday afternoon will be open for recreations.

Charleston was selected, and a program of a light though important nature arranged, in order to provide the mill executives an opportunity of relaxation and rest. The famous Magnolia and Middleton and other gardens in and around Charleston will be in full bloom, during the convention, it is stated, and these attractions, plus the opportunity to meet fellow members of the industry, provided by the meeting, should result in an exceptionally large attendance.

Rosins, Synthetic Rosins, Etc., in Finishing Cotton Piece Goods

By J. Andrew Clark

Chief Chemist, Dutchess Bleachery, Inc.

CONTINUING his series on the basic raw materials used in finishing cotton piece goods, Mr. Clark in this installment covers rosin, synthetic rosin, covering materials, etc. He will continue with enzymes, sulphonated fatty alcohols, etc., in the next installment . . . . . .

ROSIN is a brittle, easily friable solid obtained as a residue from the distillation of crude turpentine in which it is dissolved. This resin is collected in boxes cut into the base of the tree, from which it is removed and distilled in copper stills heated by direct flames. After removal of the volatile spirits of turpentine, the rosin or colophony is drawn off, strained, and poured into barrels to solidify. The rosin is graded according to color, the lighter colors commanding higher prices and are obtained from the first year dip. The older workings yield darker rosins. This material is graded as follows:

WW	Water White	F	Good No. 2
WG	Window Glass	E	No. 2
N	Extra Pale	D	Good Strain
M	Pale	C	Strain
K	Low Pale	B	Common Strain
I	Good No. 1	A	Black
H	No. 1		

Rosin varies in color from pale amber to dark reddish brown or black, has a specific gravity only slightly heavier than that of water and while softening at 70-80 degrees C. may only become fluid at temperatures of approximately 130 degrees C. Overheating causes the product to darken in color. Insoluble in water, rosin is quite soluble in many organic solvents, oils and alkalies. It is an oxygenated hydrocarbon containing a high percentage of the anhydride of abietic acid and variable amounts of unsaponifiables, the latter increasing in amount with the darker grades.

Salts of the heavy metals react with soluble alkaline solutions of rosin to precipitate insoluble compounds, while acids separate the insoluble abietic acid. Caustic or other alkalies, as well as ammonia, react with rosin to form the corresponding salts or "soaps". These are soft and sticky and of a dark brown color, dependent on the quality of the rosin used. These soaps are also quite hydroscopic, quite soluble and have free lathering properties.

Rosin in various forms is widely used in the industries. Immense quantities are used by varnish makers in the cheaper grades. The soap industry also uses large quantities, since a good grease will carry 25 to 50 per cent of rosin without being too soft or sticky in the soap. In combinations with alum, rosin is used by paper makers as a sizing, while it also is used extensively as a flux for solder and other low melting alloys. Sealing wax also contains a high percentage of rosin, while the lowly fly paper may be made by melting rosin in oil and applying to paper.

Rosin in Piece Goods Finishing

The use of rosin in the finishing of cotton is confined generally to its use in kier boiling and as an ingredient of backfilling mixes where it serves as a binder for the mineral fillers to prevent dusting.

Rosin was formerly added to the caustic or soda-ash boil following a lime boil. When used in the regular caustic boil, it is more commonly used in conjunction with soap or soluble oils.

Some of the commercial kier boiling soaps recently offered, on analysis, prove to be mixtures of red oil and rosin soaps with some pine oil. The older kier boiling soaps were widely used, although their rosin content was open to suspicion because of the difficulty in obtaining its complete removal by rinsing. This, of course, introduces the danger of after-yellowing in white goods or resists with goods intended for dyeing. One bleachery which made their own kier soap used the following formula for a long time:

Red Oil	2050 lb.
Rosin	1050 lb.
Soda Ash	290 lb.
Caustic 50° Be.	746 lb.
Water to make	11,000 lb.

Rosin size is used as a binder for heavy backfill mixes, especially in those mixes in which the proportion of mineral fillers to starch is exceptionally high. Its adhesive and sticky nature is very effective in anchoring these to prevent dusting. This product is prepared by the saponification of powdered rosin with ammonia or soda ash and is so proportioned as to contain approximately 25 per cent of the rosin uncombined and with 25 to 50 per cent of water. This forms a thick, viscous, sticky product of characteristic rosin odor which can be incorporated in the mix. In large amounts, however, it imparts a harsh feel to the cloth and may cause slight yellowing of the fabric on storage or heating. Its use may, however, be entirely satisfactory for colored heavily backfilled goods, where the slight harshness might

not be a serious handicap, or could be compensated for by the addition of sufficient softener.

Following Dr. Bakeland's publication of the research and procedure for the manufacture of Bakelite by the reaction of formaldehyde on phenolic compounds in the presence of catalysts, various other investigators sought to apply this and a wide variety of similar reactions to fabrics. The reactions between aldehydes and various organic substances, especially those containing hydroxyl groups, such as phenol, glycerine, urea, phthalic anhydride, etc., yield a wide range of synthetic resins, with widely different physical properties. Various methods of application have been tried. For instance, the fabric may be treated with a solution of the ingredients, which by subsequent drying and ageing are condensed to the resin, or resin may be formed in solution as a half-way product which can be applied and subsequently condensed on the fabric by drying and heating for a short time. One patent acquired by an English concern described the process of impregnating a rayon fabric lightly with phenol which was followed by exposure to formaldehyde vapors at elevated temperatures. The object of this treatment was to render the rayon resistant to the action of water.

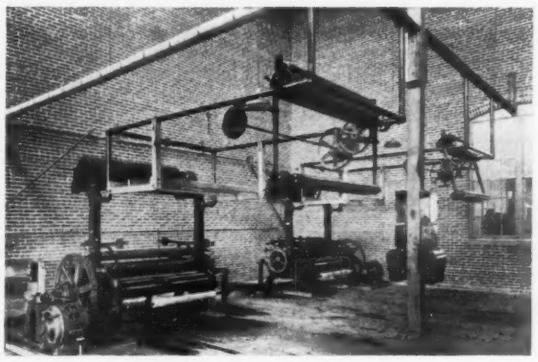


Photo. courtesy H. W. Butterworth & Sons Co.

One very beautiful but highly impractical application of this type of resin was the formation of brilliant spots on cloth to form the so-called Jewel print. A hanging drop was formed on the cloth by a very ingenious device of drawing a wire dipped in the resin through the fabric, which was held horizontal under tension as in a tenter frame. The resin was wiped off the wire passing through the cloth which formed conical shaped drops, the largest of these being fully 3/8-inch long. Following the heat treatment, these appeared as high, lustrous and sparkling spots, but unfortunately the women of the country did not possess sufficient fortitude to wear the cloth, while it was also detrimental to furniture. Its rather high cost was, moreover, a handicap to its general adoption.

One fabric recently introduced commercially contains a flexible resin applied as a face-filling of the ingredients, which are subsequently condensed by heating to yield the condensed resin. This cloth is entirely different in appearance from the usual coated fabric, is very flexible with good drape and offers possibilities for keen competition, especially in the raincoat field. The latest application of the synthetic resins to receive popular notice is in the crease-proofing of fabrics. Tootal, Broadhurst, Lee Co. Ltd. of England hold patents for this process, which are being put into commercial operation in this country by at least two licensees. This process consists of forming the synthetic resin within the fibers. This imparts a resiliency to the fabric such that if crushed in the hand, it springs back when released. While not exactly creaseless, this process is said to create resistance to creasing as well as recovery from creasing to such an extent that garments of such fabrics, mussed either by wear or in traveling bags, become presentable after hanging a short time. This treatment increases the weight approximately 15 per cent, is reasonably fast to laundering, increases the breaking strength of rayons, of the regenerated cellulose type, when wet; and helps to prevent slippage of warp or filling yarns in light fabrics. It can, so far, be applied to cotton and the various rayons, with the exception of the Celanese types. Its successful application to linen is as yet not worked out, although notices to this effect are now appearing in the technical journals.

The following is reported to be an example of this process, although other methods are also covered in the patents.

The fabric is padded with a liquid composed of: 20 parts formalin 40 per cent; 10 parts urea; 5 parts boric acid; and 60 parts water at room temperature and dried at 130 degrees C. The cloth is then heated at this temperature for 30 minutes longer after which it is thoroughly soaped at the boil to remove the resin adhering to the outside of the fabric.

The metallic luster of rayon has long suggested the possibility of treating cloth with viscose or other rayon forming solution to obtain a highly decorative lustrous fabric effect. This has been the subject of numerous patents although their application has been commercially negligible as yet.

Viscose, briefly, is made by the reaction of carbon bisulphide on alkali cellulose to form sodium xyanthate, which is then decomposed to regenerate cellulose. This regeneration may take place in several ways. In the first place, solutions of viscose undergo a type of polymirozation spontaneously until in a few days at ordinary temperatures, it breaks down, liberating the hydrocellulose. Or the solutions may be coagulated, as in rayon manufacture, by treatment with dilute acid or salt solutions. Dry heat or steam will, moreover, coagulate viscose, and this method generally is more suitable for use with viscose treatment of cloth. The coagulation of viscose is attended with the formation of sulphur compounds as well as free sulphur which are removed by subsequent treatment as in the manufacture of rayon.

Solutions of viscose can be applied either as backfilling when containing suitable minerals or, if desired, applied alone in the mangle. One such cloth treated in the mangle has been used as a grease proof fabric, a property acquired in part by the viscose film forming a window pane across the interstices of the cloth. This is also the basis of a patent by A. H. Kilmer (B. P. 369430), 1931, for the

preparation of a so-called acid-proof fabric for the protection of metals against acid or acid fumes. J. Huebner acquired German patent No. 441526 for treating a fabric with a solution of cellulose in cuprammonium after which it is treated with dilute hydrochloric acid 2 degrees Tw. It is claimed that this solution can be padded, printed or otherwise processed as usual and that mineral or metallic fillers can be incorporated as desired.

The formation of viscose by the actual conversion of the cotton yarn into rayon has also received considerable attention. One large eastern plant several years ago spent considerable sums on the development of a process dependent on the treatment of mercerized cloth with carbon bisulphide to form viscose on the surface of the yarn. While there was not much heard about the success of the process, they did learn considerable about the handling of carbon bisulphide. This latter product is especially liable to explode when vaporized either with slightly elevated temperatures or static sparks, which necessitates exceptionally well-designed ventilating systems for successful handling.

Other solvents for cellulose have, likewise, been proposed for the same purpose. The Arnold Print Works acquired a British patent, No. 282,002, on a treatment with caustic alkali followed by drying and subsequently with cuprammonium solution to produce a linen finish. If desired, a pattern effect can be obtained by printing one of the reagents to produce local effects.

The foregoing is apparently only an improvement of the older Willesden process of waterproofing which has been applied for some time to heavy fabrics as ducks and canvas, which owing to their heavy construction and service requirements are liable to mildew. This process consists of simply treating the cloth with a strong solution of copper hydroxide dissolved in ammonia solution. This solution dissolves some of the surface cellulose and after evaporation of the ammonia, leaves the regenerated cellulose as a green lacquer on the surface of the cloth. The copper hydroxide deposited with the film inhibits the growth of molds and fungus and is especially desirable in cloth intended for marine service.

(Editor's Note: This, the ninth article in the series by Mr. Clark, continues his discussion of the basic raw materials used in finishing cotton piece goods. The next installment will cover Enzymes as used for this purpose, and then sulphonated fatty alcohols, etc., will be treated. Water, softeners, starches, gums, dextrines and other materials have already been covered in installments previously published.)

The Irregularity of Cotton Sliver, Roving and Yarn

The irregularity in weight of the product of the different cotton manufacturing processes, as shown by the study of R. L. Lee, Jr., a Textile Foundation fellow, which is reported in the March issue of Textile Research, is in close agreement with the findings previously reported by researchers working at the Shirley Institute of the British Cotton Industry Research Association. The conclusions reported by Mr. Lee, who is working under the direction of Prof. H. J. Ball at the Lowell (Mass.) Textile Institute, are based on the irregularity of the weights of six-inch lengths of the product of the machines, and also on the hypothesis of as nearly correct mechanical conditions as possible, and are as follows:

"Card sliver is very variable. Through the first process of drawing the irregularity of the sliver decreases greatly. Through the second process of drawing the irregularity of the sliver remains unchanged to any significant extent. Through the slubber the irregularity increases markedly. Through the other roving frames no significant change is produced in the irregularity. Through the spinning frame the irregularity increases appreciably. The results did not indicate positively whether there was a marked superiority in uniformity of the regular draft yarn over the long-draft yarn with its fewer doublings, or vice versa. The overall change in irregularity from card sliver to finished yarn shows an appreciable increase. A close study of the card, slubber and spinning frame should be made to determine the specific causes of the increases in irregularity through these machines. Similar studies on other cotton and other yarn counts should be made."

* * *

Textile Patents of Interest

According to Paul B. Eaton, patent attorney, Charlotte, N. C., the following patents were recently granted to southern inventors, of interest to the textile trade:

Gaston Dyeing Machine Co., Stanley, N. C., secured two patents, one being on a beam for dyeing machines—which has been in use for several years—with a plurality of rings supported on rods and a perforated cylinder supported by the rings. The other patent relates to a washer which has a small upper end and a large lower end adapted to be placed between packages of yarn located on a perforated pipe for sealing the union between the two packages so as to force the dyestuff through the yarn on the packages and not allow it to escape through the joints between the ends of the packages.

L. Y. Randall, Gaffney, S. C., secured a patent on a loom dobby drive comprising a straight rod between the rock shaft and rocker arm with a universal joint connection between the crank shaft and the lower end of the connecting rod and also a universal connection between the upper end of the connecting rod and the rocker arm for the dobby. The rocker arm for the dobby has a laterally extending bracket thereon to which the upper end of the connecting rod is secured, thus enabling the use of a straight line connecting rod between the crank shaft and the rocker arm.

David L. Norris, Sr., Greenville, S. C., secured a patent on an automatically threading loom shuttle.

George E. Sumner, Columbia, S. C., secured a patent on a pneumatic picker motion for looms. This loom has no picker stick but has pneumatic casings at each end of the lay which are operated to project the shuttle from one end of the lay to the other without the necessity of employing a picker stick.

G. J. Nord, Gastonia, N. C., secured a patent on a rayon fiber and method of treating it, this covering a method of treating viscose fiber which consists of placing a mass of fibers in a vat containing water and two pounds of olive oil and palm oil to every 100 pounds of fiber and also two pounds of salt, and then heating the vat to 130 degrees F. and agitating the mass for approximately 20 minutes and then subjecting the mass to a squeeze roll to set the kinks and squeeze the mass into a mat-like form; then subjecting the mat to a fluffing machine and to a drier, the temperature in the drier being substantially 180 degrees.

Carding and Spinning Subjects Discussed at Atlanta Meeting

TIMELY mill subjects on carding and spinning, a splendid attendance and well-planned and conducted discussions combined to make the meeting of Georgia men in Atlanta last month a thoroughly worth while and helpful occasion. This report, the only detailed record made of the practical discussions, presents much opinion and experience as given at the meeting that will be useful material for study by the mill man.

WITH the largest attendance on record, the spring meeting of the Textile Operating Executives of Georgia was held on Saturday, March 17, at the Georgia School of Technology, in Atlanta, Ga., and carding and spinning problems were discussed in a helpful manner, based upon a questionnaire of subjects prepared and submitted in advance to the members. This organization is composed of the superintendents, department heads and other operating executives of the cotton-textile mills of Georgia, and two meetings a year are held—carding-spinning being discussed in March, and slashing-weaving in September.

At the meeting last month, standing room became literally at a premium. In addition to Georgia mill men, there were visitors from Alabama, Tennessee and South Carolina mills. Holding the meeting on Saturday, with practically all mills not operating on that day, plus the fact that the meeting was condensed into one session, plus a well-planned and executed program of practical value, contributed to making the extraordinarily large attendance.

George S. Elliott, manager and superintendent, Pacolet Mfg. Co., New Holland, Ga., who is general chairman of the organization, presided at the meeting.

L. L. Jones, vice-president and general manager, Canton (Ga.) Cotton Mills, who is president of the Cotton Manufacturers Association of Georgia, and T. M. Forbes, secretary of that association, both were in attendance and spoke briefly, bringing the greetings of the presidents and treasurers of the Georgia mills who compose that organization.

A. D. Elliott, superintendent, The Trion (Ga.) Company, who had been elected a member of the executive committee of the Textile Operating Executives of Georgia at the September 1933 meeting to fill an unexpired term of R. D. Harvey, who had been made vice general chairman, was at the meeting last month elected for a full term of 2½ years.

As a special feature, the meeting was opened with a brief, helpful discussion of waste in the mill, by Charles D. Honiker, of the Fulton Bag & Cotton Mills, Atlanta, Ga. Mr. Honiker's interesting paper in full appears on page 45 of this issue.

Following Mr. Honiker's talk, the general chairman turned the meeting over to A. D. Elliott, superintendent, The Trion Company, Trion, Ga., who conducted the round-table discussion on carding subjects. This discussion followed a list of questions which had been assigned to various Georgia men.

Mixing Different Grades of Cotton

The first subject discussed was represented in two questions, as follows: "Is it possible to mix Strict Low and Strict Middling half and half and get as good results as can be realized with a 100 per cent Middling mix? Would you work this mix differently than the 100 per cent Middling; what difference would you make?

"On running your staple lengths, of such a half and half mix, what kind and how many beaters are recommended for cleaning, keeping in mind that longer staple curls more easily than shorter cotton, and that excessive workings are detrimental to the ultimate break?"

Chairman Elliott called upon J. C. Edwards, superintendent, Martha Mills, Thomaston, Ga., who had raised the question, to discuss it. In answering, Mr. Edwards said that his categorical answer to the first question would be "No"—that two grades cannot be mixed with results equal to those possible with a 100 per cent run of an intermediate grade. His theory was that in mixing Strict Low and Strict Middling, "it is necessary to give the Strict Middling excessive cleaning which it does not need, in order to get the Strict Low clean; one of the great objections is that you find so much more wasty cotton in the Strict Low."

Allen Jones, superintendent, Muscogee Mfg. Co., Columbus, said, "I agree with Mr. Edwards, and will carry it one step further. If I had the problem of using two grades like that I would run the Strict Low through a cleaning line first. My experience is that clean white cotton acts as a sponge when it is cleaned in the presence of dirty cotton." Asked by Mr. Edwards as to what he would have in his cleaning line, using single-process pickers, Mr. Jones outlined a system containing a No. 12 lattice opener with one Buckley beater, two vertical openers, and a Centrif-Air machine; adding, however, that he does not like the two verticals.

"My experience has been similar to that of Mr.

Reported by Robert W. Philip.

Jones," reported George S. Elliott. "If you take a low grade and mix it in with a better grade, it multiplies your troubles to get it out. If you can run the low grade individually and then mix it on the finisher picking process, it will be better. The question as I see it, however, is if you have to run them together, by all means try to plan the mixes so it will run as regular from day to day as possible, and then make the best adjustments you can. However, I do not believe that anyone has been able to get from a combination mix of Strict Low and Strict Middling results equal in all respects to those secured from a smooth, Middling cotton."

D. D. Quillian, superintendent, Athens (Ga.) Mfg. Co., reported they had never had the problem of mixing these grades, but that he would suggest

G. S. ELLIOTT, superintendent and manager of Pacolet Mfg. Co., New Holland, Ga., who is general chairman of the Textile Operating Executives of Georgia . . . . . .

mixing the grades on the drawing if the single-process picker arrangement prevented the blending there.

"I agree with these other gentlemen," said J. A. Bone, overseer of carding, Lanett (Ala.) Mill, West Point Mfg. Co. "I do not think Strict Low and Strict Middling will mix half and half and make as even a yarn as Middling cotton, because there will be a variation in the staple as well as the color. My experience is that a Middling cotton will give you a more uniform staple and a stronger yarn."

"I think you should have two lines of mixing," responded V. J. Thompson, superintendent, Manchester plant, Callaway Mills, "and that you should run one through more cleaning than the other. We have two lines of mixing, one has one more cleaning process than the other, and we run our low grade stock through that process. We run several grades and run the low grade through the one with the most cleaning."

"We clean the Strict Middling to itself, and then clean the Strict Low to itself," reported James Oates, superintendent, Cherry Cotton Mills, Florence, Ala. "Then we card it separately, due to the fact that we think we get it cleaner in that way. If you mix it on the picker I do not see how you can make your cards take care of it. We found it better to change the settings on our cards, running the low grade through with one set of settings and the higher grade through the other; keeping them separately by means of colored strings. Then we mix it on the sliver lap machine or on the drawing. You cannot get as even and strong a yarn with the mixed grades, but you will get a cleaner yarn if you will clean it separately and mix it on the drawing or sliver lap."

"Do you alternate the cans in mixing it on the drawing?" asked E. H. Rogers, agent, Fulton Bag & Cotton Mills, and Mr. Oates replied that they "dodge" the cans, placing each kind in as every other can so that in the later attenuating processes the blending will be aided.

A. D. Elliott brought out that everyone seemed to take it for granted in this discussion that, while different grades were being discussed, the staple length was similar, and asked for the effect of running different staple lengths, as well as different grades, together. J. A. Bone replied that while "you might get, with the proper blending equipment, equally as good yarn with the same staple in different grades; if you have different staples in there I do not think you could."

"You would have to set your rolls for the longer staple, wouldn't you?" suggested A. D. Elliott, and he added that "It seems to be the general consensus of opinion that it is much better to keep the different grades separate if possible. I might add," he continued, "that at one time I worked in a waste mill where we had a 50/50 mix, half was very clean cotton and the other half was very dirty, and our practice had been to mix these. We ran some tests over a long period of time and we found that it was much better and we got more waste out by running one grade at a time. In our opinion, if you mix up a bunch of trashy cotton with a batch of clean stock it is harder to remove that trash because it is in so much bigger bulk for the beaters to act on."

The second question naturally followed, covering the equipment used in working mixed grades, either together or separately. Mr. Edwards pointed out that "in our plant we have to get every possible ounce of break out of a certain size of cord, so that we work our long staples as little as possible. We have a Buckley beater, then two Centrif-Airs in tandem, which is our opener unit, and from there it goes to a blending apron which feeds our one-process pickers; each of these pickers has one Buckley, and an evener controlling the level in the intermediate hopper; that hopper feeds to a Kirschner finisher beater and there is also a cone section evener controlling the feed to the feed roll.

"Certainly if I were running the two grades separately I would do more cleaning on the Strict Low, but unfortunately we do not have enough of the lower grade to justify that, nor is our mill laid out so that we could run the Strict Low through additional beaters."

The reference to vertical openers resulted in a discussion of this machine insofar as curling cotton is concerned. Mr. Oates said that in past years he had been bothered with this trouble, but had materially reduced it by decreasing the speed of the beater and increasing the rate of speed at which the cotton was taken out of this machine. He said he reduced the vertical's beater speed from 512 to 365 r.p.m. "In your vertical did you change the setting of the beater to the screen or grid?" asked A. D. Elliott. Mr. Oates said he had not done this, and Mr. Elliott stated that one time when he had had trouble with curling, he in some way shifted the set-

ting and got the beater too close and that by moving it back out some he reduced the curling. E. H. Rogers pointed out that "You will also find that the volume of cotton you feed in there affects the curling; if you cut the production you will reduce the curling."

A. D. Elliott asked for experiences with the use of cleaning trunks. D. D. Quillian stated that he has a section of cleaning trunk in his conveyor line, an old type which has a revolving apron for bringing the motes, etc., to the end and dumping them; that he has never found this does much satisfactory cleaning, but he left it in the line anyhow. "However," he said, "just recently I was in a mill that had installed a new distributing system and had a new type of cleaning trunk that the cotton passes through as it is going to the picker hoppers, and it was doing some beautiful work, with the cotton thoroughly opened beforehand." He said this installation of trunk included a rake which pushed the cotton along, and he preferred this to the type of trunk with stationary grids through which the cotton is pulled by suction. L. H. Rice, general superintendent, Alabama Mills, Inc., reported the use of about 40 feet of home-made cleaning trunk in one of his mills which, while it gave some trouble on long staple stock, did seem to aid in taking out a good deal of trash and dirt with short stock. This trunk has no moving parts in it, he said.

Eveners on Single-Process Picking

The next question submitted by the chairman was: "Do you have single process picking? If so, does your equipment have two or three eveners? If you use two eveners, on which section of the machine is the back evener located?"

George Glenn, assistant superintendent, Pepperell Mfg. Co., Lindale, Ga., said, "We have two different types of single process picking; one has one evener and the other has two eveners. On the picker with one evener, we have the regular finisher evener, and on the others, with two eveners, we have the regular finisher evener and an evener on the back just before the cotton hits the first feed roll. The evener on the back operates the apron on the hopper."

"Our one-process pickers were made by tying two processes together," reported L. B. Colbert, overseer carding, The Trion (Ga.) Co. "I have an evener on the back section and one on the front section. My back evener runs with sprockets and runs the feed into the hoppers, and then there is the one on the front. Both eveners are tied together with a rod and it is all driven from the front evener."

R. A. Morgan, general manager, Cedartown Cotton & Export Co., said his one-process arrangement was made by hooking up two processes; that the evener on the hopper is underneath the section of apron which was retained between the two sections as a carrier. "On the front we have the regular H. & B. evener motion. We realize this is a makeshift combination, and I think some of the other methods as put out by the makers are better, but we do get a very uniform lap with our arrangement."

C. E. Willis, overseer carding, LaFayette (Ga.) Cotton Mills, said that on his one-process pickers he has one evener on the front and another underneath the machine which regulates the flow of cotton into the hoppers; the cones are connected. A. D. Elliott suggested that even though one evener is controlled by the other, both are eveners nevertheless.

Reporting on an installation of single-process machines built originally as new pickers in this form, R. P. Sweeny, superintendent, Exposition Cotton Mills, Atlanta, stated, "we have one evener motion in advance of the last beater; the cotton is fed on the apron and the evener regulates the speed of the apron."

D. L. Mattox, overseer carding, Fulton Bag & Cotton Mills, using original one-process machines, said, "we have only one evener, on the finisher, and we get very satisfactory results. At one time I have run as many as 365 laps without losing one." He explained this was partly due to staying on one mix, that most of the lap loss he has comes from changing mixes.

R. D. HARVEY, superintendent, Pepperell Mfg. Co., Lindale, Ga., who is vice general chairman . . . . . .

At the suggestion of Mr. Rogers, the agent of his mill, Mr. Mattox presented a new suggestion in connection with picker lap loss. He said at one time his lap loss seemed excessive, and he ran a test for four days, on a battery of five one-process machines, keeping a record of the laps lost from each individual machine, and this test disclosed that in this department, no laps were being lost from the first four machines, that practically all the rejects were coming from the fifth machine, the one furtherest away from the condenser. He explained that this machine was not getting enough cotton from the rake distributor used in feeding these pickers, due to the fact that he was not getting enough overflow. By increasing the amount of cotton fed, and thus the overflow, he said, he succeeded in providing enough cotton so that this last hopper kept full like the rest of them.

A. D. Elliott pointed out this was a good thought; that "most of us consider all of our pickers and all of the laps coming through as against the total rejects. Mr. Mattox has brought out the importance of keeping a record of the work of each picker so as to know just where the rejects are coming from."

J. C. Edwards told of having trouble getting an even distribution in all of the hoppers in a line of six pickers fed by a rake type distributor which carried the overflow back over the top; that he had rem-

edied this by cutting some openings in the line allowing more cotton to go into the fourth and fifth hoppers.

Answering the original question, Henry Robinson, assistant superintendent, Columbus (Ga.) Mfg. Co., reported that "we have two eveners, which are synchronized, on our one-process pickers; the back evener is located on the hopper section."

Mr. Wood, of the Covington (Ga.) Mills, reported using original one-process machines, the finisher section evener operating the same as on the old process; "we also have a set of cones on our hoppers that regulates the flow of cotton all of the way back, as the supply gets too much it will cut it down and if it is not sufficient it will speed it up."

"We have some pickers with two eveners and some with one evener," reported J. A. Bone. "On those with one evener we get a good lap." He emphasized the importance of yard-to-yard evenness, pointing out that "you will have 15 or 20 yards that will not vary over a half-ounce, and then maybe you will have one yard that is 1 or 1½ ounces light or heavy." On his other pickers, he said, they have two eveners which are tied together.

"We have the rake type distributor with an overflow, and I think it is essential to try to keep the hoppers fed as uniformly as possible, with a reservoir box. With this lay-out our experience is that we can make an even lap and yet the hoppers may run almost empty and then fill up. With this arrangement our laps will not vary ½ pound. With this reserve box on the hopper with the return back to the hopper, he said his set-backs will run on an average about 1½ per cent.

Asked by J. I. Alford, Covington (Ga.) Mills, what he does about yard-to-yard evenness, Mr. Bone said one of the most helpful things is to keep a uniform feed through the use of the return on the hoppers.

"We have quite a bit of rejected laps, and we do *not* have them," stated James Oates. "We built some trucks with racks on them, and every lap that is rejected is identified with a colored string showing whether it is light or heavy, and we put it with others of similar weight on the racks in this truck. We have certain cards painted with a different color on the side to correspond to the strings on the lap stick, and run the various weights of rejected laps through these different cards, and then we mix the stock on the sliver lap and drawing. We feel that this saves the expense of re-working the lap and saves the damage to the fibers that would result from re-working, and the variation is taken care of."

The Hunting-Tooth Knock-Off Gear

The next question was: "Do you have your pickers equipped with the hunting-tooth gear knock-off? If so, what method do you have of determining if the lap is about ready to knock off? If the pickers should get out of doffing rotation, how do you get them back to doffing in the proper order?"

There was a brief discussion on this, indicating that there are several types of hunting-tooth gear knock-offs in use, some of which have a cover on them, and others exposed. On the latter type, some men reported that it is possible, and more convenient than on the covered type, to make adjustments by changing the relation of the gearing. In the case of a choke-up or a broken lap, these are held to be picked up on the next doff. "If you have a break-out or a choke-up," said one man, "there is a way to re-set them. The knock-off change gear is on a swing, and the change gear has 46 teeth and the intermediate gear 53 teeth, and by setting this knock-off change gear 7 teeth behind the hunting-tooth on the intermediate gear, that will knock-off." The chairman stated that the main thing seemed to be to try to keep the speeds of the pickers the same. George S. Elliott brought out that "some people have experienced trouble in keeping the pickers together and they may want to know that this can be done chiefly by making sure that the pulleys are not slipping and that there is no variation in speed. The proper pulleys, and keeping the belts in the proper shape, are very essential with the hunting-tooth gear." The overseer of carding at Swift Mfg. Co. reported the use of the hunting-tooth gear of the exposed type; he said the only way he knew to predetermine when a machine is ready to knock-off is to watch the size of the lap and estimate it from that. He said his type of hunting-tooth gear can be re-set and that this is necessary when changing from one color lap to another—or when a lap breaks. No one present was able to offer a general rule, in answer to the first question, as to how to determine if a lap is about ready to knock off.

Life and Care of Card Flats

The chairman next asked: "What has been your experience as to the normal life of the wire on top flats? Describe the method you use in determining when it is necessary to replace flats? Do you replace chains when replacing flats?"

J. C. Platt, agent, Aragon (Ga.) Mills, reported first, stating that "It has been impossible for me to tell just how long the flats last. I never have seen a record that extended back more than 10 or 12 years, but I have seen flats in service for 20 to 25 years. The temper of the wire, how heavy you grind, the card production, etc., all determine how long a flat will last. The flats that I have seen that need replacing have reached just a little above the knee; I doubt if it is ever advisable to get too close to that knee because then you get an entirely different action. Roughly, with a fairly light grinding, good care and careful setting, a card flat should last 15 years." This life, he said, was approximated on a 60-hour week. He said lots of people operating two shifts are inclined to be neglectful of grinding on the second shift. He repeated that, "I believe when the wire gets down close to the knee of the wire, the little lumps and tufts of cotton operate on the wire with a drastic action, and that longer teeth, with the necessary 'spring' will give a better action."

"We replace chains from time to time," said Mr. Platt, "but not necessarily when we change the flats, because we find chains that have to be replaced when the flats have several years more life in them."

W. R. Beldon, manager, Clark Thread Co. of Georgia, stated that generally he agreed with Mr. Platt; that as the flat chains become worn he follows the practice of removing two of the 110 flats and operating with 108 before putting on a new chain.

George Glenn of Lindale reported that, running 50 hours a week. he has some flats which have seen 20 years of service. He said that in determining when to replace flats, they are governed by the distance of the point of the wire above the clip of the flat. "If the wire has been ground down a little higher than the clip the flats should be changed; in that way you have used about two-thirds of the distance down to the knee," he said. "When we change flats we change chains; but the chains will not last as long as the flats." R. D. Harvey, superintendent at this plant, reported that they have quite a few flats that, carding 14 pounds an hour, had been running for 30 years on a 50- or 55-hour week basis.

The actual life of card flats must be told by older men, declared P. W. Ellis, superintendent, Sibley Mfg. Co., who said he had been in the mill game 27 years and that was not long enough to determine this point on clothing properly taken care of. However, he said, the foundation of the clothing must be watched; that sometimes it may drag on the plates and loosen the foundation, and then it should be taken out. He emphatically declared that he replaces chains when changing flats; that chains cost only $13.00 and that flats cost many times that amount, and that he felt it good economy to start a new set of flats with a new chain. He expressed it as a personal opinion that it would be a good thing to change all of the clothing on a card at the time of changing flats.

"Has anybody run a test through to the spinning, where flats have been worn down, to determine the effect there?" asked Mr. Rogers. No one else answering, he called on Frank H. Cooper, one of his assistant superintendents, who reported that he had run such a test, but while he did not remember the figures, he did know that it showed up very much in favor of new flats.

V. J. Thompson of Manchester declared that under average conditions, card flats should last at least 20 years. He pointed out that flat life depends on how much production is run, the amount of grinding, etc. The shorter the wire, he said, the less short cotton will be held by the flat.

L. L. Jones of Canton asked whether anyone present had taken out more than two flats from a 110-flat set, and if so, what the results were. Several men stated they take out two flats, but no one had gone any further than this. One man said he had once gotten down to 106 flats, but the results were not at all satisfactory.

"I once had the pleasure of going to a mill that had been running for 14 years, and there had been three sets of flats changed in that time, and all of them were running with 108 flats," said George S. Elliott. "We tried to take out another one, but the chain wasn't worn sufficiently, and we put in new chains and ran them for six years more, so there is 20 years of life on those flats."

J. A. Bone declared that he has flats that have been running 15 years, 55- and 60-hour week, carding 14 pounds an hour.

5-Ends Up at Drawing; or Increased Draft

"If it becomes necessary to make a lighter drawing sliver, is it better to go from 6 to 5 ends up, or increase the draft on the drawing frame?" was the next question. A. D. Elliott, who had submitted the question, reported that he was faced with a condition where he first tried keeping the 6 ends up and increasing the draft, but that he had so much trouble with this that they went to 5 ends up and keeping the draft about what it had been, and secured satisfactory results. E. H. Rogers said he had tried 5 ends up but found no improvement and finally went back to 6 ends up; however, his draft was about 6.00 to begin with. Harry H. Purvis, superintendent, Chicopee Mfg. Corp., Gainesville, Ga., said, "We are not running a draft over 6.00, and we changed from 5 ends up to 6 ends up and increased the draft proportionately and got slightly more even roving with this additional end up; same weight of drawing sliver."

Fiber Card Room Bobbins

The final question discussed was "What is your experience with using, in the card room, bobbins made of material other than wood? How does the life compare with that of wood bobbins?" D. R. Senn, general superintendent, Sibley Mfg. Co., Augusta, Ga., said he had had some experience with fiber bobbins, but that his present opinion is that wood bobbins last sufficiently long. D. D. Quillian, superintendent, Athens (Ga.) Mfg. Co., reported that he has had a number of foreign-made fiber bobbins in for about a year, and that they are satisfactory; that out of 10,000 or 15,000, he has not lost a one, and has gotten very good service, whereas out of that many wooden bobbins he felt a number would have been lost.

Long Draft in the Card Room

It was intended, in concluding the card room discussion, to present some experiences with reference to the use of long drafting in the card room. No one in Georgia had as yet installed sufficient of this equipment to make a thorough report. A mill in another state which had been fully equipped with long draft roving frames had no representative at the meeting. A. D. Elliott of Trion stated that he has two frames equipped experimentally, and that he is making exhaustive tests with the idea of "trying to find something wrong with it, and so far our conclusion is that the thing is possible." He said he had recently visited the Dwight Mfg. Co. plant at Alabama City, Ala., which, with other improvements, has been completely equipped with long draft roving, and had an official's permission to report that this plant is entirely satisfied with the installation. It is planned to discuss the subject more fully when further installation of the principle has been made in Georgia mills.

Spinning Discussion

At the conclusion of the carding discussion, J. C. Edwards, superintendent, Martha Mills, Thomaston, Ga., conducted a brief discussion on several topics relating to the spinning room. The first question was, "Does the use of the combination or reverse combination wind on spinning completely eliminate smoked yarn?" This was interpreted to refer to a reverse warp wind, in which the first layer is the shortest stroke and the last layer the longest. The trouble in question was the settling of train smoke, dust, etc., on the yarn while on the frame. It was decided that while no type of wind would eliminate this problem, the use of a reverse wind in which each layer covers up each preceding layer would tend to distribute the smoke or dirt better throughout the bobbin, as no amount of the yarn was exposed for a great length of time as in the case of regular build.

R. A. Morgan said he thinks smoked yarn is prevalent to some extent in all mills, caused by dust, radiation from heat coils, etc.; that the reverse warp wind is best to distribute this accumulation so that it will not be so prominent. Julian M. Longley, assistant superintendent, The Dixie Cotton Mills, pointed out that changes in atmospheric conditions in the room will affect the amount of smoked yarn; that the warmer the air, the greater the tendency to hold the particles in suspension and that a decreased temperature will deposit them. On straight filling wind, where you have a big proportion of the bobbin exposed throughout the doff, the trouble is particularly difficult, he said.

"In making bunches on a filling spinning frame, should the main traverse cam be run back to the original starting point after each drop of the traverse?" was the next question. V. J. Thompson said he does not do this; that this will produce a tendency for the yarn to drop over behind the bunch and that while this may not be such a problem on coarse numbers, that on fine yarns when this occurs it will break the yarn. He said he starts the bunch down just as low as possible and then drops back a little when going back. R. D. Harvey said they start their bunches at the bottom.

"Describe the method of properly weighting the traverse motion on a spinning frame," was the next question. J. H. Hampton, overseer of spinning, Fairfax (Ala.) Mill, construed this to refer to the roving traverse motion, and declared that, "the only way to do it is to put enough weight on it to make it follow the cam back. A lot of times cams will get worn and you do not have enough stroke, and this will cause creasing of the rollers. We try to keep ours weighted just enough to follow the cam back. We have to change cams once in a while when they wear."

The chairman explained that the question referred to the traverse motion operating the ring rail and not the roving traverse motion. J. I. Alford of Covington reported that they had once attempted to balance the ring rail and weight exactly, but that this was not satisfactory. They distributed the weights along the frame and moved the weights just a little on the heavy side to give them a positive pull and that this method was satisfactory and resulted in some saving from the power standpoint.

J. C. Edwards explained that on at least one make of frame, he felt that the logical setting was with the weight arm horizontal and the swing arm vertical, at a 45-degree angle to the weight arm.

Long Draft Better on Mixed Staples

The next question—asking whether mixed 15/16-inch and 1-inch cotton will affect the evenness of the yarn on the old or regular system of drafting; and on long draft—was disposed of briefly with the opinion that mixing staple lengths on the old system of drafting undoubtedly produced more uneven yarn; but that with the newer systems of better and controlled drafting this evil has been greatly reduced under such conditions of mixed staple.

Replacing Aprons on Long Draft

"Is it better to replace the aprons on long draft spinning frames periodically, or as they wear out," was next asked. R. D. Harvey of Lindale reported that they have had long draft in for two years and they have been replacing the aprons as they wear out. However, he said, it had been suggested by a machinery maker that after the frames had been running for about five years, it would be good practice to have established a regular procedure of replacing the apron to insure against bad work from worn aprons which might not show their defects. A. D. Elliott stated that he is now instituting a system of doing this. E. H. Rogers reported a weekly inspection of aprons and replacing any that need replacement. R. P. Sweeny said his present system is to replace the aprons as they break, but he plans a system of regular inspection. The belts wear thin, he said, and after a while will lose their drafting qualities without breaking, and that he plans a two-weeks inspection procedure for replacing any that are under suspicion. Allen Jones said he has handled the matter both ways; that his practice is to take out the rolls and scour them every six months and examine everything, but that it is all right to examine the belts every one or two weeks.

The next question asked for "a discussion of the relative merits of flat wire and oval wire or a combination of flat and oval wire used in making twister ring travelers." Mr. Edwards, the chairman, stated that he felt the matter of travelers is something dependent on local conditions. There was no discussion of either section of this question, other than that W. R. Beldon said he likes the use of half-round wire in twister travelers; and R. L. Zachry said he had no report as between flat and oval wire, following an inquiry made of him at Mr. Rogers' suggestion. The latter portion of the question was intended to bring out experiences with a new traveler in which the ends are made oval and the center part which runs around the web of the ring (vertical rings) is pressed out flat, but no one reported experience with this.

"Please give us full information as to your further experience with cork rolls on spinning," start-

ed the next discussion. A. B. Peterson, overseer of spinning, Pacolet Mfg. Co., No. 4 Mill, New Holland, responded, "I have no particular report to make. We adopted cork rolls on spinning about a year ago, and have the cork on all of our front rolls and most of our middle rolls, and on a few frames we have all three lines equipped. They have given us perfect satisfaction and we like them mighty well. As to the time of re-buffing we vary from three to four months. They should be re-buffed when they need it. We run a variety of numbers from 9s to 25s and the rolls on some of the numbers need re-buffing oftener than those on other numbers."

Experiences with Cork Rolls on Spinning

"Do you find your drafting surface will stand up as long as a good drafting surface on a good leather roll?" asked Mr. Edwards.

"I think so," said Mr. Peterson, adding that he has standard or regular, and not long draft, frames.

"Do they lick up as bad?" asked the chairman. "No sir," replied Mr. Peterson. As to breaking strength, he said, "It is, if any different, one or two pounds better on cork than on calf- or sheepskin." A member asked Mr. Peterson if he has any trouble starting up the cork rolls on Monday morning, and he replied that generally he does not have this trouble, but that if the rolls are not kept properly re-buffed it will be encountered.

In an effort to determine what had been done as to the use of chemicals in the humidifier system for various purposes, a question on this point was asked. Allen Jones, superintendent, Muscogee Mfg. Co., Columbus, Ga., was the only one reporting the use of the idea. He said he uses a soluble pine oil, in very small quantity, which is mixed up with the humidifier water—using about a quart a day for a mill of over 30,000 spindles—solely for the purpose of freshening the air and overcoming a mustiness which is prevalent in the mill atmosphere, particularly on Mondays after the week-end shutdown. He said he uses it solely for the purpose of freshening the air and not for any possible germicidal effect, nor for laying the fly in the mill. J. C. Platt reported permitting a man to begin putting a product into the humidifier water which was claimed to assist in maintaining the proper moisture content of cloth. However, he said, the installation had been faulty, the pump had stopped up, and at the time of the meeting he had had no opportunity to ascertain whether there was any merit in the idea; that he was simply experimenting with it.

The meeting was adjourned at this point. No luncheon was served and there was no afternoon session. The large attendance and many expressions heard after the meeting indicated the wisdom of holding the meetings on Saturday and of limiting them to a morning session. After the meeting many of the delegates inspected the textile department of the college, which was kept in operation by Director C. A. Jones to permit the mill men to inspect the various equipment there.

Whitney Cotton Gin Placed on Exhibition

What is believed to be the only authentic replica of Eli Whitney's cotton gin is now on exhibition at the Museum of Science and Industry in Jackson Park, Chicago, Ill. It was made from the original patent specifications which were signed by George Washington on March 14, 1794. Whitney's original gin was a spiked-tooth gin rather than a saw gin. Spikes picked the seeds from the raw cotton and brushes removed the cotton from the spikes and threw it into the bin.

Whitney conceived the idea of a cotton gin while staying on the farm of the widow of Nathanael Greene, the famous revolutionary general. He had invented several labor saving devices for the widow including an embroidery frame and when the conversation turned one evening to the laborious task of cleaning cotton, Mrs. Greene suggested that Eli try his hand at solving the problem. Whitney secured some cotton bolls and ten days later invited Mrs. Greene and her guests to see his invention. Whitney went through a long siege of lawsuits before the priority of his gin was allowed but the supreme court finally gave him the credit he justly deserved and the State of South Carolina awarded him $50,000 while North Carolina allowed him a royalty on all cotton gins used in that state for five years.

The gin which is now being shown at the Museum can be operated. Although cotton gins have been made larger and modernized since the day of this ingenious Yankee inventor, the basic principles of separating the seeds from the cotton still remain. Whitney's cotton gin had a profound effect on political conditions. Before its introduction many southern planters were seriously considering emancipating their slaves. It took a slave a month to seed a bale of cotton weighing about 300 pounds before the invention and after it a thousand pounds could be cleaned in the same time. Cotton became king and the value of slaves rose accordingly. Thus a great labor saving device played an important part in bringing about the Civil War.

Although Eli Whitney will always be remembered as the inventor of the cotton gin he had many other mechanical patents to his credit. He was the first man to introduce interchangeable parts which he accomplished while manufacturing muskets for the government. If he had done nothing else but this he would certainly be remembered today when interchangeable parts are of paramount importance in the automotive industry.

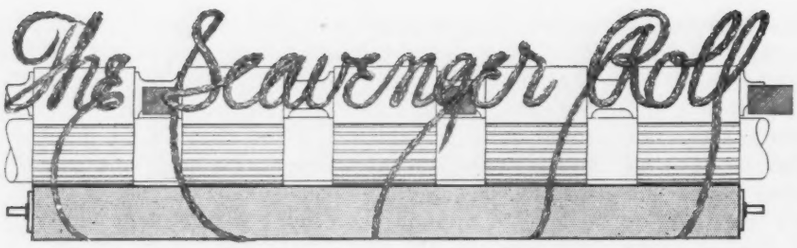
* * *

Yarn Ass'n Elects Howerton President

The annual meeting of the Carolina Yarn Association was held in conjunction with a dinner at the O'Henry Hotel in Greensboro, N. C., on Monday evening, March 12. At this meeting, new officers were elected for the coming year. R. D. Howerton, of Charlotte, was named as president; R. J. Mebane is vice-president; J. R. Morton is treasurer; and W. T. Dodge, 1035 Jefferson Standard Bldg., Greensboro, N. C., is secretary.

This organization is composed of selling representatives of yarn manufacturers, knitting and other mill manufacturing equipment, and men in allied lines. Its members conduct each year a yarn tournament, to which mill men and others are invited as guests. This will be held sometime during the fall of 1934, the exact date and the place to be announced later, it is stated by Mr. Dodge, the new secretary of the organization.

The Scavenger Roll



SOME readers feel that, due to the name of this department, it is devoted entirely to spinning. This is not the case, because its purpose is to pick up ideas on any and all departments in the mill, from this mill and that, and deposit them here for you. The name derives from the similarity of this function and the purpose of the scavenger roll. Reprints of several of the previous installments are available upon request. We welcome suggested topics for next month . . . .

Cutting Off Licker-in Screens

Several years ago some of the mills using long staple cotton began cutting off as much as 1½ inches of the back side of the licker-in screens on their cards. This allows increased space for droppings and flyings and the long staple cotton is held securely enough by the licker-in teeth that good stock is not thrown off as fly waste. Within recent months this idea has spread to mills working short staple stock. We doubt its success in the latter field. Our opinion in this instance is based on an experience in setting the mote knives at different angles for different staples of cotton. In a mill using 1 5/32-inch Peeler it was found the mote knives could be tilted forward as much as the brackets would allow, or almost at right angle to the plane of the licker-in's motion. Greater cleanliness in the sliver was thus obtained for two reasons: (1) The mote knives presented a sharper, better edge for knocking the trash and neps from the fibers; (2) More space was made for droppings between the knives, and between the knives and the licker-in screen. This was tried in another mill using ⅞-inch Upland cotton, and the mote boxes soon filled with good, white stock. It was necessary for the knives to present a flatter face to the cotton on this short stock to prevent this waste. The deduction was that the licker-in teeth had insufficient hold on the short staple to carry it past the increased space without excessive waste. The knives were set to .009-inch and .007-inch at top and bottom respectively.

Grinding the Licker-in

While on the subject of licker-ins and what-have-you, let us remark that we have seen several mills using a traverse grinding arrangement on the licker-in. Those we have seen have been made from traverse grinders as used on cylinders and doffers, with a suitable rigging for holding the licker-in. The licker-in teeth are thus ground flat on top, and to a flat point on the bottom edge. A few mills claim better results from a licker-in so ground, and a few have tried and abandoned the idea.

The only good we can see in grinding of this nature is that the licker-in is made perfectly round and can be set accurately to the cylinder (and mote knives, feed plate, and screen can be set accurately to the licker-in), an accomplishment that is impossible with most of the licker-ins we have seen. The danger we see in it is that the slightest hook or burr left on the sides of the teeth might cause loading of the licker-in, and that the knocking off of the sharp, penetrating point of the teeth would make the web cloudy. We understand there is now on the market a licker-in grinder that grinds the sides of the teeth, bringing them up to a point as when the wire was first wound on. This appears to be the first satisfactory answer to the age-old question of how to repair a damaged licker-in without rewinding.

Twisters Made From Spoolers; Quillers Made From Twisters

The resourcefulness shown by mill men when cornered by some mill problem is ever a cause for admiration and awe. We have seen some splendidly performing twisters that were made from spoolers, evidently because once upon a time a superintendent had spoolers and needed twisters. The creel is arranged along the lower part of the spooler frame near the floor, the yarn running upward to the thread guides. The spindles are on the beam as originally arranged and a suitable ring rail completes the job. No less remarkable is a twister pinch-hitting for a quiller. Package-dyed filling was being re-wound onto filling quills by a battery of winders made for the purpose. The production was inadequate so that a twister was converted into a quiller. To avoid putting in additional twist the traveler cleaners were temporarily knocked over against the ring flange, thus holding the traveler which then acted merely as a guide. The filling was coarse (it may have been two-ply yarn in this particular case) or this couldn't have been done without excessive breakage. We believe that now the spindle speed and roller delivery have been synchronized so that no additional twist is being put in. It was a problem to get the ring rail speed fast enough to lay this coarse filling properly, particularly with such rapid delivery. This was accomplished by using triple worms in place of single worms in the lay and builder mechanism.

Poor Shuttle

A townsman, engaged in another line of work, had just been taken on his first visit through a cotton mill.

Upon returning to the office to brush the lint off his blue serge suit, the superintendent asked the visitor for his reaction.

"Well," the visitor replied, "those shuttles sure do catch hell, don't they?"

Taking Out Single Twist on Twister

Often we have wondered how much twist is taken out of single yarn when it is plied on a twister, the twister spindle running in the opposite direction from the spinning spindle. Some months ago this question was asked and answered in a textile paper. The party furnishing the answer stated that it is approximately true that the twist taken out of the single yarn in plying is equal to the number of turns put into the ply yarn. That has never seemed sensible to us for this reason: We have made single yarn with 27.5 turns per inch. Specifications on the ply yarn called for 26 turns per inch. So that, according to the informant referred to, we would have only about 1.5 turns per inch remaining in the single yarn after plying. Which seems absurd to us.

The best answer to this was furnished by a friend who ran some mock twist on the spinning, so that the number of turns per inch could be counted with a fair degree of accuracy, and then plied this yarn. After plying the turns in the single yarn could still be counted, and he found the twist taken out of the single yarn by plying to be 8 to 12 per cent. This will vary with conditions and combinations, it is true, so that we can't say anything definite and positive except this: The twist taken out of single yarn by plying is not as great as the turns put into the ply yarn.

A Personal Word

The conductor of The Scavenger Roll Department is especially grateful and encouraged on account of the wholesome response that the readers of this magazine have indicated in behalf of this little department.

It shall be our endeavor from month to month, space being available, and there being something to say in that space, to continue collecting these little paragraphs from this, that and the other mill, and serving them up to you readers on this page.

We are trying to serve a diversified menu, something for everyone, as it were, and, to this end, we hope that any reader especially interested in any particular subject will do us the favor of sending us a letter or a postcard, asking "Why don't you publish something on thus-and-so?"

Not daring to hope to even approach the widespread and effective appeal of our neighbor-contributor, Old-Timer, we do assure you that we profit by your comments, just as he does, and all constructive criticism, suggestion and comment that you may make will be duly reflected in a continued improvement of this page and its value and interest to you and others. Please let us hear from you.

Sincerely,
THE SCAVENGER ROLL.

Sloan of Textiles Heads Consumer Industries Committee Resulting from General Code Conferences

THE National Recovery Administration conducted in Washington during the week of March 5 a general conference of code authorities for the purpose of "ventilating" the work of the NRA by criticisms and suggestions. The conference drew to Washington representative leaders in all types of industry and commerce in the country, and the record and outcome in a broad sense has received full publicity and could not be reported in detail in these columns, due to space limitations.

One development of interest to textile men, however, was the appointment by General Johnson, recovery administrator, of a committee from the code authorities of the capital goods industries, and one representing the consumer goods industries (including textiles), and the appointment of George A. Sloan, president of the Cotton-Textile Institute, and chairman of the Cotton Textile Code Authority, as chairman of the consumer group. Immediately upon his appointment, Mr. Sloan located in Washington for several weeks on this special work.

On March 15, under the chairmanship of Mr. Sloan, the consumer industries committee submitted to General Johnson its report with reference to the Twelve Point NRA Code Plan proposed during the general conferences by the administrator. Since the movement of more greatly effectuating the code administration is in a transitory stage, and in view of the extent of the report, it cannot be reproduced here. Generally, however, one conclusion reached and reported by the committee is of interest to textile manufacturers, themselves in the consumer industries group, but themselves also customers of the capital goods industries. The committee referred in the report to the direct connection between the ability of industry to increase employment and the problem of securing compliance with code provisions. They expressed the belief that the first objective in the present effort for re-employment may well be directed toward accelerating and improving the certainty and efficiency of the compliance machinery. If pressure for reduction in hours is applied before this can be done, it was pointed out, the honorable employer sincerely complying, often at heavy expense, with all his NRA obligations, including those to labor, will as against his dishonest competitor who is now undermining him, be subjected to a new burden if his industry is determined to be one that should reduce hours. The habitual code violator would be the first to ignore his obligation to effect such reduction.

The committee further declared it as an intention to recommend to its respective code authorities an immediate survey of their capital goods requirements with a view to ascertaining what the consumer goods industries can do to assist in the capital goods industries. Inquiry will also be suggested as to what in cases where there is hesitation or reluctance in undertaking commitments for capital goods, is the explanation thereof.

The committee also urged that renewed effort should be made to bring under approved codes those industry groups which for any reason are not operating under codes, feeling that this will aid the unemployment problem.

Consumers' Industries Committee Statement

The following statement was made by the Consumers' Industries Committee, headed by Mr. Sloan. Other members of the committee represent tobacco, retail stores, coal, ice, foods, paper, shoes, chemicals, woolen piece goods, soap, etc.

"The committee believes it should make a candid statement relative to the place of the consumer goods industries in the broad recovery program.

"Such industries are an essential part of the whole but the time has come to face squarely the fact that the main burden of unemployment is in the capital goods industries and that this burden can not be loaded entirely or primarily upon those manufacturers producing consumer goods, i.e. food, clothing, fuel, etc.

"We consider it highly important to define the extent of the unemployment problem as it bears on the consumer goods industries as a particular section of the total economic structure of the country. According to figures presented by the Secretary of Labor on March 5th, the number of persons employed last November in the manufacture of consumption goods was 3,730,000 as compared with 4,468,000 in November, 1929. This would indicate that the burden of unemployment in the consumer goods industries is in the neighborhood of 738,000 persons. Although this figure is important, nevertheless it must be recognized that it is a relatively small proportion of the total unemployed of the country. More than nine-tenths of the unemployment burden is outside the consumer goods industries. It is obviously impossible to load the major task of re-absorbing the great bulk of unemployment upon the consumer goods industries. At this state of recovery, we believe that further substantial progress in re-absorbing the unemployed necessarily depends upon revival of capital goods industries.

"The country is rapidly approaching a limit to the capacity of consumers' goods to absorb unemployment. Even if this class of industries were to employ more labor than in 1929, the bulk of those today unemployed would still remain unemployed.

"What, then, is the trouble in the capital goods industries? What factors steadily hold back recovery in this vitally important field? It is not sufficient answer merely to say that surplus capacity has existed. The consumers' goods industries themselves would, in our judgment, have substantial demand for new capital in the way of repair, replacement and modernization, without adding to productive capacity, provided business could have normal and reasonable confidence. We believe that throughout the greater part of our entire economy there is a potential, legitimate demand for new capital which awaits the return of the confidence factor.

"The natural question, therefore, is: What retards and destroys such confidence? We believe the answer is found in the unnecessary and repeated stirring up of uncertainties and fears which, while assuming political form as legislative proposals, are pertinent be-

cause of their direct bearing on the economic factors involved. It is sufficient to enumerate a few of these major political obstacles:

(1) The Wagner bill, which implies a form of coercion on labor policy extremely disturbing to industry;
(2) The Connery bill, which threatens industry with an unbearable burden; and
(3) The Securities Act, with its extreme imposition of liabilities.

"These are leading illustrations but they serve to describe the type of attitude on the part of political agencies which obstructs that revival of confidence which alone can give a firm foundation for revival of the capital goods industries. Each time the spirit of enterprise begins to show a little vitality, some new political obstacle is thrown into the roadway, and enterprise is forced to retreat.

"In his address to the NRA conference two weeks ago, the President said very justly: "The Government cannot forever continue to absorb the whole burden of unemployment." The head of our Government clearly expects private enterprise to gradually shoulder the burden, but private enterprise needs encouragement. It needs that encouragement which millions of investors and hundreds of thousands of business enterprises have been accustomed to require as valid reasons to induce them to invest in and for the future.

"We should be remiss in our duty as a Committee were we to fail to draw attention at this time to the emphasis which, in our judgment, rightly belongs upon clearing the way for confidence and for revival of the capital goods industries. Even the best efforts of NRA and the most earnest co-operation of Code Authorities can not make a dent in recovery and reemployment which everyone wants if this great defect is allowed to continue.

"Our efforts in the consumers' goods group will suffer severe handicap until this capital phase of the whole problem is dealt with along more constructive lines. In furtherance of our particular task, as part of the larger task of all industry, we earnestly recommend a better co-ordination of the two great groups of manufacturing, capital goods and consumers' goods. The first step is removal of political obstacles and legislative threats."

The Problem of Character in Raw Cotton

By C. M. Conrad*

THE quality of cotton is indicated commercially by three broad categories of quality elements, namely, grade, staple length and character. For two of these, grade and staple length, standards for quality have been developed. However, the present degree of standardization has been attained only after the expenditure of much time, effort, and financial outlay not to mention trying of patience. While the present standards have met with a considerable degree of success and have covered a large portion of the field of quality there still remains a broad gap represented by unstandardized elements of character. The present paper deals with the advantages which might follow from the development of adequate standards for character. Among these, may be mentioned the more ready recognition and segregation of cottons adapted to more specialized purposes; the removal of certain influences which affect classification according to the existing standards the general replacement of private types and standards by more comprehensive and universally recognized standards; the gradual replacement of spinning tests by less expensive processes or tests; the gradual improvement of the quality of American cotton, and finally the gradual improvement of the marketing processes in such a way as to return to the farmer just compensation for growing the better types and varieties. Some of the difficulties in the way of immediate standardization of character are pointed out to be: lack of fundamental knowledge necessary as a basis for setting up standards, lack of practical methods for recognizing important character properties and segregating the different degrees, lack of information concerning the relation of fiber properties to yarn and fabric properties, and finally lack, in many cases, of adequate laboratory methods to measure the fiber properties. While there are undoubtedly a number of fiber properties which may or may not influence yarn and fabric quality, and which are not yet isolated, some of the more or less obvious character elements are strength, cohesiveness of fibers, fiber elasticity and pliability, fiber fineness, uniformity of fiber dimensions, capillarity and porosity of the fiber substance, fiber maturity, and fiber durability. The possibility of training cotton experts to recognize various degrees of the different character properties when once they have been isolated or separated, is expressed. However, probably not all the character properties will be susceptible to this type of evaluation and for such of these as are important it may be possible to develop rapid mechanical methods. In any case the standardization of the character elements will require the close cooperation of laboratory technicians with cotton experts over a considerable period of time. While the information necessary as a basis for standardization is accumulating, the cotton breeder and grower will be provided with very necessary information to guide them in the improvement and selection of the better types of cotton which will in turn result in general benefit to the public.

A more detailed paper is in preparation for publication by the U. S. Department of Agriculture in the near future.

*Cotton Technologist, Division of Cotton Marketing, Bureau of Agricultural Economics, U. S. Department of Agriculture.

Abstract of Paper Presented at the Meeting of Section I On Cotton, Committee D-13, American Society for Testing Materials, at Washington, D. C., March 8, 1934.

Processing Stock for Multiple Style Requirements in the Weave Room

DO you want a short-cut method for figuring the number of looms required for producing a given order of goods? Or for finding how much per week your loom will produce of a given construction? Or for calculating the number of warp and filling spindles necessary for supplying the yarn for these looms?

This article, written prior to NRA, is based on a 55-hour week, but the principle is readily applicable on a 40- or 80-hour basis . . . . .

◆ ◆

THE writer has used, to good advantage, the following ideas in consolidating and co-ordinating production data with a view to bringing about a better control of processing stock in spinning for detailed weaving requirements, and having found them to be accurate and valuable as time savers we are passing them along in the hope that they will be of help to others.

The calculations incident to weaving production are, no doubt, as familiar as the air to all of us. Often, however, these calculations are long, and in cases where a wide variety and large number of styles are to be run the necessary balance of production between spinning and weaving resolves itself into a battle with details. We do not mean that close attention to details can be evaded, but we can so systematize this work as to make the proper management of production much simpler in every day operations.

The proper time to get minute details on any style of goods is at the very beginning. Every time we put a new style in production we should secure all of the manufacturing details and catalog them for future reference. By so doing we can save a world of perpetual figuring.

We know that the production of any style, along with the construction details, must be predetermined. Unless we have a finger-tip reference, we are forced to wade through several long calculations: one being the general production formula for looms. In applying this formula we use, repeatedly, several constant figures. Some of these are constant on all looms, while others are peculiar to certain groups of looms. The element of time and measure of length are the same in all cases. Each weaving job has its own speeds and average efficiency. By the use of a production constant we can eliminate the long-drawn-out formula and figure the production of any loom in a single operation. In doing so we must know the speed of the loom and its operating efficiency. A formula for determining the yards of cloth per week on a loom is:

$$\frac{\text{(Loom speed)} \times \text{(Minutes Per Hour)} \times \text{(Hours Per Week)} \times \text{(Loom Efficiency 100\% Minus\% Allowance for Stoppage)}}{\text{(Picks Per Inch)} \times \text{(Inches Per Yard)}} = \text{Yards Cloth Per Week.}$$

Since loom production is based on the speed of the loom and the picks per inch in the goods to be made, we start here to find our constant. The speed of any loom is a constant quantity. With proper weaving the efficiency of operation is constant enough for practical application.

Let us assume that we are to make a fabric of the following description:

36-inch 8.42 ounces per yard 60x60. 22s 2 warp. Filling to weight.
Loom speed—150 picks per minute.
Loom efficiency—90 per cent.
Pick in goods—60.
Run 55 hours per week.

$$\frac{150 \times 60 \times 55 \times .90}{60 \times 36} = 206 \text{ yards of cloth for 55 hrs.}$$

This will give the loom production, but why go through this long calculation for every style that we run?

By omitting the pick per inch in this calculation we have:

$$\frac{150 \times 60 \times 55 \times .90}{36} = 12375 \text{ a constant figure.}$$

This figure when divided by the pick per inch will give the yards per week:

$$\frac{12375}{60} = 206 \text{ yards in 55 hours}$$

This last calculation, while simpler than the first, is not necessary provided we still have figures cataloged from some other 60 pick fabric we have run in the past. The constant is a handy instrument when working out new constructions.

With the proper arranging of information, gathered from day to day, we can often turn to a certain page in our catalog and secure short cuts which are constantly helpful.

In order that we may have our weaving production information as readily available as possible it is best to tabulate it as it is acquired, perpetuating it as the various constructions are made from time to time. The diagram in Table I is a convenient method of doing this.

In cases where several different loom speeds are being used, it is necessary to figure constants for

each group. Having figured constants, we may proceed to list production data for each pick count and speed that we are running or which it is possible to run.

Index a note-book space for *Loom Production Data* and then tabulate it on a sub-sheet headed *Weekly Loom Production.* (See Table I).

Weekly Loom Production

Picks Per Inch of Fabric	55 hours 90 percent Loom speeds and constants		
	50-inch loom 128 r. p. m. Constant 10560	40-inch loom 150 r. p. m. Constant 12375	32-inch loom 170 r. p. m. Constant 14025
	Yards	Yards	Yards
40	264	309	351
50	211	248	281
60	176	206	234

Table I

The records in Table I can be carried on indefinitely to cover any speed, count or efficiency desired. Here we see at a glance what yardage we may expect per loom on any goods from 40 to 60 picks per inch at three different speeds. With a table similar to this as a guide it becomes a simple operation to see just how many looms are necessary to produce a required yardage of goods in a specified time.

Having arrived at this point we proceed with finding the spindleage to produce the necessary warp and filling yarns. Using the fabric described, we proceed as follows:

36-inch 8.42 ounces 60x60. 22s/2 warp. Find filling.

$$\frac{36 \times 60 \times 2 \times 16}{840 \times 22 \times .85} = 4.40$$ ounces warp per yard of cloth. 52.26% warp.

8.42 — 4.40 = 4.02 ounces filling per yard necessary.

$$\frac{36 \times 60 \times 2 \times 16}{840 \times X \times .93} = 4.02$$

$$X = \frac{36 \times 60 \times 2 \times 16}{840 \times .93 \times 4.02} = 22s/2 \text{ filling required.}$$

This being a 36-inch fabric, it will run on a 40-inch loom. Speed, 150 picks per minute.

From our loom production table we see that a loom will deliver 206 yards per week of 55 hours.

$$\frac{206 \times 8.42}{16} = 108 \text{ pounds per loom per week}$$

108 × 52.26 = 56 pounds of warp, leaving 52 pounds of filling required to run each loom on this fabric for a 55-hour week.

In order to efficiently produce the right amount of both warp and filling per loom, we must of necessity know the production capacity of our spinning. Here a spinning production table can be computed and included in our catalog to splendid advantage.

Although it is not a complicated matter to figure the per spindle production, it becomes monotonous from continued repetition. In order to eliminate this undesirable feature we should have a spinning production table, Table II, figured for pounds per spindle, with the necessary corrections for stoppage, waste in spinning, and waste between spinning and weaving. Such a table should be similar to the illustration showing 22s yarn.

Pounds Per Spindle for 55 Hours
Corrected to —% Allowance

Yarn No.	Roller Speed	Warp Lbs.	Filling Lbs.	Spindle Speed
22s	——	2.00	2.20	——

Table II

We know now, by tabulated information, what we may expect in pounds per spindle. We also know that we shall have to have 56 pounds of warp and 52 pounds of filling yarn per week supplied to the weave room for each loom that we run on our sample fabric. Therefore:

$$\frac{56}{2} = 28 \text{ warp spindles per loom}$$

$$\frac{52}{2.2} = \frac{24 \text{ filling spindles per loom}}{52 \text{ total spindles necessary to run one loom per week.}}$$

Thus far we have written on the assumption of starting a new fabric in production in order to show that we may secure and tabulate data incident thereto. As is usually the case, however, we probably have a good many fabrics to produce concurrently which have already been run at some time, as well as several staple styles that run almost continually. Quite naturally, some of these styles will run out in the weave room from time to time as orders are completed and others will be substituted for them. In such cases, the necessary corrections must be made in the spinning room to produce the yarns required for each style of goods.

Often only a minor change of several frames from one number to another will be sufficient. On the contrary, it often becomes necessary to rearrange practically the entire layout of numbers. The only satisfactory way in which this can be done is to use actual requirements in the weave room as a basis on which to work. Here, properly tabulated information can be employed to a great advantage, from the standpoint of time and accuracy. A complete table of all known styles and constructions within the range of the mill, showing the description of the goods, production requirements per loom, and spindleage per loom per week, make these general changes easy to compute and accurate when executed. They lend themselves to a more efficient operating standard in the spinning process. Since only a few minutes are required to figure from them, reg-

Fabric Production Requirements Per Loom Per Week—55 Hours

Style No.	Yds. Per Week	Lbs. Per Week	Lbs. Warp	Warp Spindles Needed	Lbs. Filling	Filling Spindles Needed	No. Warp Yarn	No. Filling Yarn	Description Of Goods
500	206	108	56	28	52	24	22/2	22/2	36"-8.42 Oz. 60x60-Duck

Table III

ular periodic changes can be used to a large extent, thereby eliminating the necessity for a lot of miscellaneous changing, which is a source of lost production and extra expense. Such a table illustrating our demonstration fabric is shown as Table III.

By keeping permanent records of the details as outlined, we who are responsible for processing stock will be able to simplify our personal tasks as well as to enhance the efficiency of plant operation.

It is seldom impossible to tabulate data in a helpful manner. Probably in working out these tables they may seem unnecessary, but in the long run, they will be worth more than the effort necessary to draft them.

State College Textile Students Visit Mills

Annually, the senior class in the Textile School of North Carolina State College makes a trip to some of the leading Southern mills, in order to supplement their classroom instruction by observations in actual practice.

The class of 1934 made their annual trip recently and was accompanied by Dr. Thomas Nelson, Dean of the Textile School, who has directed textile education at State College for nearly thirty years.

The party visited the May Hosiery Company and several plants of the Burlington Mills located in Burlington; the Proximity Print Works and the Proximity Mills in Greensboro; several plants of the Carolina Cotton and Woolen Mills located in North Carolina and Virginia; the Tarbardrey Mills and the Granite Finishing Works in Haw River; and the Riverside and Dan River Mills in Danville, Va. These plants manufacture and finish a wide variety of textile products.

At every plant visited, prominent officials of the mill conducted the party through the various departments and pointed out the things that are of the most value to young men who are soon to become an integral part of America's largest industry.

The students were signally honored by two of the companies which they visited. The Carolina Cotton and Woolen Mills entertained them at dinner in the Broad Street Hotel at Martinsville, Virginia. Luther H. Hodges, General Manager of this Company, who had accompanied the party through the plants at Leaksville and Spray, was unavoidably detained by business engagements, so J. F. Wilson, manager of the Fieldale plant, J. H. Ripple, superintendent of the same plant, and Mr. Lindsay of the general office at Spray, acted as hosts for the company.

At Danville, the Riverside and Dan River Mills entertained the students at dinner in Hylton Hall. Here the students were honored by the company of President R. R. West, Vice-President George W. Robertson, and Superintendents Boland, Clark, Becher, and Chase. Mr. West and other members of the party made short talks to the students.

At every plant visited the party found graduates of the Textile School filling responsible positions, and these men joined with other officials of the plants in making the visit both pleasant and instructive for the students.

* * *

Cotton Bags Popular As Consumer Packages

Consumer packaging of farm products in cotton bags has been increasing rapidly, says the Bureau of Agricultural Economics. The bureau notes, for example, that more than 10,000,000 cotton bags were used in 1932 in consumer packaging of potatoes. In 1928 only about 500,000 cotton bags were used for this purpose.

The bureau says in a printed pamphlet just issued on the subject that cotton bags make attractive packages; they supply a suitable surface for brand names and make possible effective advertising; they are durable and little affected by moisture; they represent minimum tare weight, and they have a high salvage value. Economies in labor costs in packaging oranges in consumer-size cotton bags are cited.

Three sizes of consumer bags are in general use for potatoes—carrying 10, 15, and 25 pounds. Three years ago, the 25-pound bags were most popular, but now the 15-pound bags are most popular, and more of the 10-pound bags are being used.

In connection with its researches looking toward increased use of cotton, the bureau, in cooperation with North Carolina State College developed a duplex cotton fabric that has open-mesh, and close-mesh sections, the open-mesh section permitting consumer inspection of the contents of bags made of this fabric, and the close-mesh portion providing a surface for brand names and other labelling. Bags of this fabric are being used in retailing onions, potatoes, and walnuts. More than 2,000,000 bags of this type have been used since their introduction to the trade less than two years ago.

An all-over open-mesh cotton fabric is being used in consumer packaging of citrus fruits and nuts, and the bureau says that dealers who handle large quantities of fruit assert that this container carries fruit from growers to consumers with less than the average loss sustained when other containers are used. A patent covering the construction of the duplex bag has been granted by the United States Patent Office, and the rights of the Government inventor have been assigned to the Secretary of Agriculture in the interest of the public.

A survey by bureau representatives recently disclosed that farm products in consumer-size cotton bags are being received in practically all northern markets, in the East, in many southern markets, and in some western markets. Some wholesalers and retailers said they believe that the small cotton bag is rapidly becoming the principal type of container for merchandising potatoes, onions, and citrus fruit.

* * *

Munday Represents Peerless

J. W. Munday, well known throughout the South, has been appointed southern representative for Peerless Belting Company of Gardenville, N. Y. Mr. Munday's headquarters are at Charlotte, N. C.

CURRENT TEXTILE TOPICS. . . .

Talk of the Month

ONE may draw a parallel on control of industry from the old saw that the power to tax is the power to destroy: that is, industry might be taxed to death by pressure to make it digest too rapidly an increasing load of shorter hours and more pay that is easily proposed but not so easily made practical.

Industry Needs Chance to Digest the New Deal

Economics has its normal part for experiment, but that is only a fair share of the whole. Moreover, experiment piled on experiment makes an unsound basic condition. Private business may have had many evils before the New Deal and these created a demoralized situation, but it also knew the costs of operation and the need to accord these with the ideas of buyers as to price. What it needs now is a chance, under the codes, to assimilate its new cost position as of the present and adapt itself to prevailing market conditions.

If the Administration program clearly were one for adjusting the whole economic relationship to new standards wherein the producer could unhesitatingly increases his costs and pass them on without trouble to the consumer, the hours could be further shortened and the wages raised. So far, the idea seems to have been one of quite contrary character. Higher prices for finished products have been generously condemned. Textile interests have shown an extraordinary readiness to cooperate with the NRA in experiment. President Roosevelt struck a note of confidence last spring that spread throughout the country. Now what they want is a chance to go ahead confidently on their own initiative under prevailing conditions until the situation demonstrates the need for further change.

Industry at large is going ahead and absorbing more workers. There are reports in various quarters, including textile centers, of actual shortages of workers. Furthermore, there are reports of wage increases in various places. It may be true that shorter hours are practical for some branches of industry. In fact the appeal of General Johnson in the general meeting at Washington brought a prompt response from some groups in the adoption of a 36-hour week and corresponding increase of the wage scale. Gradual improvement is under way and the process will continue if it is not forced to the breaking point through a buyers' strike because of high prices to cover unduly increased costs.

In the wool division of textiles the problem of keeping prices down in the face of increasing costs of production under the code has diverted buying to cheap mixtures that threaten, in some opinion, the prestige of the industry. On a rising market, cotton textiles have a relative advantage and this has been enhanced by the development of goods with high style appeal. Yet it has been the prevailing idea that cotton manufacturers have gone the limit in reducing hours and increasing wages, pending the realization of a freer buying market at better prices. Co-operation with the NRA has shown its advantages, but a continuation of self-determination as vouchsafed by the Administration from the start is essential to the working out of experiment and practical operation, if the industry is to contribute toward restoring the prosperity of the nation.

In spite of uncertainties since the first of the present calendar year, hinging on the fears of a 30-hour, or at least a shorter than the 40-hour week the cotton industry has developed well under the code. The very active movement of goods during January and February was helped along by the fact that the new spirit of the industry in December, with a quick reduction of output when it was shown to be essential, created a sound market position at the year-end. Then came another lull, but the demand from the converters and from consumers of finished merchandise kept going. This and the fact that the previous careful policy of mills in keeping production to orders left stocks well in hand, even to the point that buyers who had procrastinated were caught short.

In less than a year under the regulated condition of the cotton industry, it appears to have been demonstrated that the buyer is facing a new order of things. The greater stability of the markets through the spring lull in buying of unfinished fabrics gives testimony to this effect. If the progress of things economic in general is maintained, there is reason to believe, even a forty-hour basis of operation will extend the industry. Some observers have been complaining that restrictions upon the resumption of machinery are too severe. The industry has listened to the call for co-operation. If the call comes from industry for relief, after it has shown itself ready to work for promotion of the general good, it should also be heeded.

IT WAS a year ago that cotton manufacture in New England began to burgeon forth anew, after a period not of hibernation but of long lethargy. The great progress in restoration of plants dates largely from the summer, notably since the NRA created new confidence in the long-range prospects for the industry. Yet last spring started the ball rolling, especially for those plants that were in ready operating condition. The boom in goods which followed a feeling of confidence engendered by constructive action for relief by the President on his inauguration laid a groundwork for activity, which was given further impetus by the then forthcoming imposition of the code.

New England Mill Situation

These things are pertinent to the present, because they are the antecedents to a notable transformation at the end of a year. It has become almost

trite to mention the increases in payrolls of mills, but they are one of the outstanding barometers of progress. They tell an indirect story of co-operation toward the general relief of unemployment in industry, as well as the contribution of the district toward agricultural relief through purchases of cotton. Thus there is significance of manifold character in reports around mid-March of payrolls twice those a year earlier in New Bedford and Fall River, as well as great increases in other centers of cotton manufacture.

Among recent developments also cited as "unusual and agreeable information" is the announcement that a shortage of skilled textile operatives exists in New Bedford. The movement of re-employment will continue from all indications, as reports are made concerning contemplated restoration of further important units in the section. At the request of the Federal Reserve Bank of Boston in the middle of March the Chamber of Commerce at Fall River made a quick survey of local mills and reported back that a number of corporations possibly could find use for some $500,000 in case government loans should be made direct to the industry.

Following the good business of the first two months or so in 1934, the mills were well sold ahead through the spring and active operations were forecast for the remainder of the half-year. However, the prospects beyond June are not so assured, according to a statement by James Sinclair, president of the Fall River Cotton Manufacturers' Association. One danger cited is that foreign competition may invade the American markets to a serious extent. Another is that rising costs might force cotton goods up to the point where the lessened differential would give a relative advantage to rayon or even silk fabrics. Mr. Sinclair also suggested that it might be wise to confine curtailment under the code to summer months, workers being relieved from the special strain of unemployment and lack of wages in the cold weather.

On the question of higher costs, the processing tax has again come in for attack in this section, with the receivers of the Hoosac Mills Corporation, ex-U. S. Senator William M. Butler and James M. McDonough, filing a report in the Boston Federal District Court asking that a bill for $80,591.71 levied as a floor tax by the AAA be cancelled. The receivers' report charged that the Agricultural Adjustment Act and taxes imposed by regulations issued thereunder are "unconstitutional and void". This action was hailed as offering at least an interesting test case.

Following a threatened walk-out of workers in the Jefferson mill of the Amoskeag Manufacturing Co., Manchester, N. H., in February over the work load, the matter finally was taken to Washington for adjustment by the Cotton Textile Industrial Relations Board. Both management and employees were represented at a hearing on the question of whether the number of looms operated by each worker should be reduced, which was demanded by the operatives. The hearing brought an agreement, which provided that an expert should be sent to the mill for a thorough study of the work load situation there, the company and employees meanwhile making an adjustment for the immediate period of operation.

It appears that abatement of taxes to save an industry to a community is fraught with some danger, because of possible unworthy applications for such relief. Thus the Fall River Herald News says that "if there is any question concerning the legality or propriety of proposed abatements to the Stevens Manufacturing Company and the Maplewood Products Company the board of finance and city government should proceed with great care." On the broad principle the paper says: "The responsibility is that of the board of finance and if there should be the least indication or suspicion that private interests or selfish motives would be served, rather than the public good, then no reduction should be considered. If Fall River has new taxpayers ready to step in and take responsibility over plants which are endangered and where there would be no worry over the destruction of a tax source, distress abatements logically would not be proper or fair. But where there is the balancing of the possibility of retaining a tax source, or a certain loss, the situation is quite different."

National Cotton Week Plans

PLANS are maturing for National Cotton Week, from May 14 to 19 inclusive, under the auspices of the Cotton Textile Institute. This comes at the opening of the retail selling season on cottons, and cotton converters and manufacturers of finished goods are making special plans to work with the stores to make this the biggest cotton year in a decade. Cotton and the cotton industry are front-page news now-a-days—cotton textile manufacturers have NRA Code Number 1 and are among the leaders in supporting the forward-moving measures already taken for national recovery. Style acceptance of cottons for men and women is constantly spreading in importance. The usefulness of cotton is being extended steadily for apparel and the home in articles of almost endless variety.

Last year more than 28,000 stores all over the country actively participated in National Cotton Week, and their experience proved that this event brought direct tangible results. This year the Cotton Textile Institute is prepared to work closely with all merchants taking advantage of the present improved opportunities to promote cottons on a store-wide basis.

The Institute has prepared a series of mailing pieces which will be available without charge to all participants throughout the country. Brochures showing the results of last year's cotton week, with reproductions of some of the outstanding advertisements, window displays, etc., will be available; and

One of Namm's window displays during last year's National Cotton Week . . . .

a series of bulletins giving information and merchandise ideas for all departments, authentic style information, sales promotional material, is being distributed. Posters in red, white and blue, for window display, will be available.

The insignia of the week (shown in the accompanying cut) will be available in mats for newspaper use. Radio-broadcast material is available, as well as a complete broadcast outlining "A Trip with King Cotton Through His Realm Today".

The Institute is securing the co-operation of many hotels, railroads, chambers of commerce and consumer publications in directing attention to National Cotton Week. Leading soap companies and laundry organizations will feature the "Care of Cottons" in their own promotional campaigns during the week. Advertisers of consumer goods in various fields are putting special emphasis on National Cotton Week in their campaigns directed to stores and to the public. Reproductions of the poster in miniature will be featured in that connection.

COMMENT ON THE COTTON MARKET

New Orleans, March 17, 1934.

In keeping with the view expressed in previous review, the cotton market assumed a reactionary trend until near the close of February. Thereafter, except for temporary dips, the tendency of values was upward. Of late, however, the market ruled comparatively steady, virtually marking time pending Washington developments as to progress of the Bankhead crop control bill. Compared with one month ago contract values show a depreciation of about $1.00 to $2.00 per bale, but Middling spots is only 50 cents per bale lower. During the past month depressing features were: Liquidation, influenced by the delay in acting on Bankhead legislative proposals, uneasiness over the European political situation, fear of possible strikes in some of the major industries, and indications for an increase of European consumption of foreign growths, perhaps at the expense of American, and talk of probable increase in acreage in foreign cotton growing countries, which may make for larger foreign cotton crops this year. Favorable factors were: More favorable of late prospects for Bankhead legislation, predictions for a revision more favorable as to stock exchange control proposals, favorable progress in the House on the soldier's bonus bill, and the possibility of further legislation in the interest of silver and agricultural products.

Recently the New York Cotton Exchange Service estimated the world's consumption of lint cotton for the first half of the season—August to January, and the world's stock of cotton, as of January 31st, as follows:

Bales—	This season	Last season
World's consumption of American, running bales	7,045,000	6,977,000
Of foreign, equivalent 478 lb. bales	5,622,000	5,028,000
World total, all kinds	12,667,000	12,005,000
World mid-season stock, Jan. 31st, American	17,430,000	18,972,000
Of foreign	11,284,000	9,940,000
World total	28,714,000	28,912,000

BRITISH BOARD OF TRADE REPORT FOR FEBRUARY

Year—	1934	1933	1932
Exports of yarn, pounds	11,000,000	12,000,000	13,000,000
Exports of cloth, yards	168,000,000	195,000,000	180,000,000

CENSUS BUREAU REPORT FOR FEBRUARY

United States— Bales—	This season	Last season
Consumption of lint cotton in Cotton Growing States, February	376,211	369,805
Consumption of lint cotton in New England States, February	87,826	60,443
Consumption of lint cotton in All Other States, February	13,853	10,955
Consumption of lint cotton in United States, February	477,890	441,203
Consumption of lint cotton in Cotton Growing States, 7 months	2,715,640	2,720,635
Consumption of lint cotton in New England States, 7 months	587,338	444,164
Consumption of lint cotton in All Other States, 7 months	98,636	88,591
Total consumption of lint cotton in United States, 7 months	3,401,614	3,253,390
Mill stocks, February 28th	1,654,369	1,449,413
Stocks in public storage and warehouses, February 28th	8,638,995	9,377,781
Stocks in mills, public storage and warehouses, February 28th	10,293,364	10,827,196
Stocks in mills, public storage and warehouses January 31st	11,102,959	11,519,662
Active spindles during February	26,355,498	23,669,146
Active spindles during January	25,653,324	23,753,638

As was the case in previous month, British Board of Trade returns were rather disappointing, but domestic consumption for February was encouraging. Late advices from the New York cotton goods market, however, denote less activity, except in shipments, for which there is an eager call, and mills generally are reported to be well provided with business well into May. There is the possibility of the government spending an additional $150,000,000 for cotton goods for the needy if the proposed legislation is considered and acted favorably upon.

MOVEMENT TO MARKET, EXPORTS AND SPINNERS TAKINGS

Week ended, March 16th— Bales—	This season	Last season
Week's in sight (marketed)	143,000	121,000
Since August 1st	11,152,000	11,709,000
Week's exports from the U. S., inc. Canada	123,000	59,000
Since August 1st	5,948,000	6,003,000
Week's spinners takings of American (world)	253,000	230,000
Since August 1st	9,931,000	9,437,000

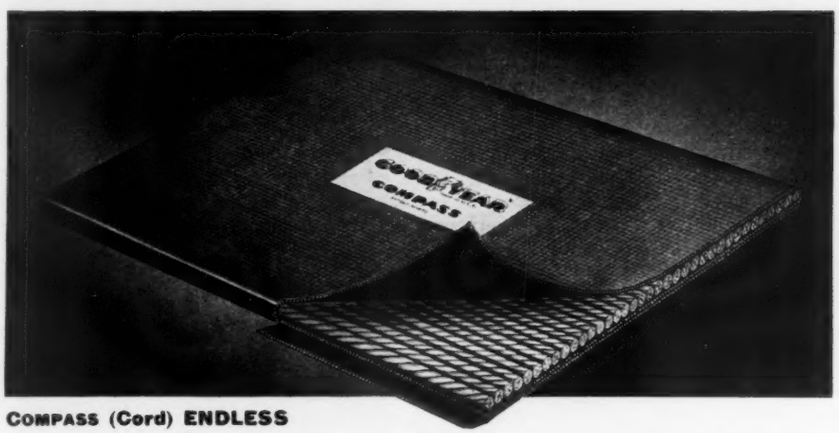
WORLD'S VISIBLE SUPPLY OF COTTON, MARCH 16TH

Bales—	This year	Last year
American	7,975,000	9,442,000
Of other kinds	2,450,000	1,791,000
Of all kinds	10,425,000	11,233,000

The movement to market, while still much behind last season, showed some increase the past week compared with corresponding week last year; probably due to some spot owners being disposed to sell more freely, but, compared with last season, spinners takings the past month show a further expansion compared with last season, and are now running on a basis of 15,667,000 bales for the whole of this season versus 15,173,000 for the whole of last season, linters included.

As to preparations for the next crop, while the soil is reported to be generally in good condition, the continuance of low temperatures in the interior is reported to have somewhat retarded planting and germination over the extreme southern portion of the belt. At this time another cold wave is heading for the cotton region which will likely retard further planting operations and germination of seed. It is possible, therefore, that, because of the low temperatures the crop may not get off to so early a start as was expected some weeks ago. According to returns to the New Orleans Cotton Exchange, sales of fertilizer tags in the South this year have been very large, as noted by the following:

MOST NEARLY STRETCHLESS!



COMPASS (Cord) ENDLESS

MILL-PROVED

GOODYEAR

FOR OPENERS

PICKERS

LAPPERS AND

TWISTERS

OUT of actual experience with textile mill needs, Goodyear—itself a great user of cotton—originated and perfected the most nearly stretchless transmission belt ever made:

The Goodyear COMPASS (Cord) ENDLESS Belt

It is built especially for machines which require belting of absolutely minimum stretch—your vertical openers, pickers, lappers and twisters.

It is truly endless; made of cords laid side by side, bound with Goodyear rubber, and enclosed in a fabric envelope that is double on the pulley side. The cord carries the tensions; the cover takes the wear.

You can get more efficient and more economical belting and hose by talking over your requirements with that practical expert on rubber, the G. T. M.—Goodyear Technical Man. To get in touch with him write Goodyear, Akron, Ohio, or Los Angeles, California, or call your nearest Goodyear Mechanical Rubber Goods Distributor.

THE GREATEST NAME IN RUBBER

GOODYEAR

TRANSMISSION BELTING

STATEMENT OF FERTILIZER TAGS SOLD IN TEN COTTON STATES AUGUST 1 TO FEBRUARY 28, BOTH INCLUSIVE

	Year— 1934	1933	1932	1931
Tons	918,250	466,050	471,001	972,080

Sales of mules to the cotton belt are reported to have been very large this year also, and it is possible that sales of farm implements to Southern farmers were of good proportions. But the possibility of the Bankhead crop control bill limiting next season's ginnings to 10,000,000 bales tax free, may change the complexion of the situation, especially since the estimated acreage rented under all 1934-35 contracts that had been signed to March 14 totaled 15,152,000 acres. This is said to be 38.19 per cent of the base acreage of contracting producers, whose acreage remaining in production will total only about 24,276,725 acres. This area, unless added to, would be the smallest acreage in more than 30 years, and only about one-half of the area planted to cotton some years ago. Last year's acreage for harvest was estimated at 30,144,000, and the production 13,177,000 bales of 500 pounds gross weight. It may be possible to raise more cotton than the Bankhead bill may permit, if passed, which would be 10,000,000 bales tax free, but the excess, if any, could not be marketed, except by payment of the tax.

Of course, if the Bankhead bill is enacted without much change from its present form, this year's crop will likely have the benefit of a surplus of farm labor, intensive cultivation, weather permitting, and much plant food in the way of fertilizer, which, under normal weather conditions could be productive of a large yield per acre. On the other hand, should climatic conditions this year be unfavorable for the next crop, or should insects, especially the boll weevil, be numerous and destructive, yield results may be disappointing. Probably because of the South's intention to reduce further its acreage this year, late cables from abroad have been laying stress on the probability of foreign cotton growing countries increasing their acreage with the view of making larger cotton crops, and much has been said of foreign spinners using much of foreign growths at the expense of American. As yet, however, the trade does not seem to be disturbed very much over such possibilities, more attention being paid to developments in Washington, particularly to the progress of the Bankhead bill.

TOTAL AVERAGE RAINFALL IN TEXAS, IN INCHES

	Year— 1934	1933	1932	1931	Normal
February	1.69	2.18	3.20	2.96	1.79
November through February	8.54	8.31	14.07	10.42	8.12

With the coming of spring there appears to be a growing optimism as to future trade developments, providing there be no important labor troubles in the major industries, as carloadings, electric power, automobile and lumber returns have been improving, as has steel until of late, and as large expenditures by the PWA are anticipated, and large payments for acreage rentals are to be made by the government this year, some of which have started already, the general business outlook remains encouraging. At the moment, however, there is some concern as to the present labor dispute in the great automobile industry and with the railroads. It is possible, nevertheless, that satisfactory settlements will be arrived at in the interest of the success of National Recovery Act, which is in the interest of business recovery.

What the Southern Mills Are Doing.

An addition 100x200 feet is being erected by the Highland Mills, Griffin, Ga. Part of the annex will be three-story and the remainder one-story, and 400 looms will be installed. Also, several new homes are being erected in the village. Robert & Co., Inc., Atlanta, Ga., are the engineers.

Roseboro Cotton Mill, Roseboro, N. C., which has been idle for three years, is resuming operations, under lease, by Chesterfield Yarn Co., which operates plants at Kinston, N. C., and Pageland, S. C.

Angle and Blackford, Greensboro, N. C., have started construction of a new one-story building in which a new silk textile plant will be installed. The building is being constructed for J. W. Cone, Benjamin Cone and others, and it is understood J. Spencer Love is also interested.

Langley Mills, Langley, S. C., are installing a yarn dyeing plant, with an investment of about $25,000. The mills are also wiring 165 houses in the village.

Laboratory Cotton Mill, Lincolnton, N. C., is installing new card room equipment, new flooring, and making other improvements.

Cross Cotton Mills, Marion, N. C., are making improvements and extensions to cost approximately $125,000. The spindleage will be increased about 50 per cent and much of the new equipment installed will be for replacement purposes.

Cowpens Mills, Cowpens, S. C., recently installed a shearing machine in the cloth room; they are installing machinery for equipping the opening room with a blending and modern mixing system. In connection with the opening room improvements, the picker room equipment will be changed over to one-process, the slubbers are being converted into intermediate frames and new slubber equipment is being installed. Sometime ago the mill started changing the spinning from single to double creel, and with these changes the mill will be equipped to make both coarse and fine numbers.

Contract has been awarded for re-insulating the Victor-Monaghan Mills, Greenville, S. C., for a change in the voltage of the electrical system; 347 motors are involved. New switch boards and controls are being installed throughout the mill, and the system will be handled with remote control. Carter Electric Co., Augusta, Ga., are the contractors.

Proximity Mfg. Co., Greensboro, N. C., has let contract to D. F. Harwell, Greensboro, N. C., for an addition to the White Oak Mill, adjoining the north end of the weaving room, to house 18,000 spindles. The building will be two-story, of brick and steel, 415x138 feet. In addition to housing the 18,000 additional spindles, the building will afford space for future expansion and re-arrangement. The added spindles will operate two shifts and will increase yarn production so that 1,500 of the 3,000 looms in the White Oak Mill may be operated on a second shift.

The Proximity plant of the same company is installing 12,000 additional spindles by which 800 looms will be added to a second shift. These additions are designed to bring the yarn production of the two mills into line with the weaving capacity. J. E. Sirrine & Company, Greenville, S. C., are the engineers on this work.

McLaurin Hosiery Mills, Inc., Asheboro, N. C., is a newly organized mill, with T. B. Upchurch president, D. B. McCrary, vice-president, J. C. Bossong vice-president, and N. M. Cranford secretary-treasurer. The mill has 200 women's seamless Model K machines and 40 Banner men's wrap hosiery machines.

Black Mountain Hosiery Mills, Black Mountain, N. C., recently purchased Scott & Williams 25-step float and wrap stripe machines, to increase the capacity approximately 60 per cent.

Walton Knitting Mills, Hickory, N. C., organized by E. W. Walton, formerly manager of the Hickory Hosiery Mills, will erect a building, 36x140 feet, one-story, with separate dyehouse and boiler room. The company will engage largely in finishing and converting, but some knitting will be done.

Hanes Hosiery Mills, Winston-Salem, N. C., recently installed 240 new seamless machines, adding considerably to the plant's production.

1/4

OF ALL SPINDLES NOW "ON CORK"

and the greatest increase came when business was hardest hit!

FOR every spindle on cork in 1928, there are *eight* today! When business demanded the greatest economy, the greatest efficiency, mill operators were quick to turn to cork . . . because time after time it has saved mills sixty . . . seventy . . . nearly *eighty* per cent on their roll covering bills.

And the same mills will tell you they get equal or better yarn with Armstrong's Seamless Cork Cots! Operating conditions are improved . . . lap-ups and clearer wastes are reduced . . . eyebrows are practically eliminated . . . hard ends and high humidity affect cork less . . . there are fewer roll changes . . . fewer piecings . . . fewer slubs in the yarn. These are the things that have made mill owners sit up and take notice—and made them change to cork!

Write for facts and figures—*today*. Armstrong Cork & Insulation Company, Textile Division, 923 Arch Street, Lancaster, Pennsylvania.

6,100,000 SPINDLES ARE NOW ON CORK

***Armstrong's* SEAMLESS CORK COTS**

For Spinning and Card Room Rolls

NEW TEXTILE EQUIPMENT AND PUBLICATIONS . . .

New Waltham Pick-ometer

Waltham Watch Company, Waltham, Mass., have announced an improved re-set "Pickometer", for pick counting on looms, containing several new features. When re-set to zero, it is explained, this Pickometer does not cause the weaver to lose any accumulation of production not ordinarily shown on the counter dial. A wheel, numbered in red, at the extreme right, reads in hundreds of picks and is not re-set with the remaining four wheels; so that, the manufacturers point out, the weaver will be paid for any production up to

The new Pickometer

one thousand picks. This red wheel may be shielded by the cover, unshielded, or omitted as desired.

The manufacturers explain that these Pickometers cannot be taken apart unless they are first removed from the loom and a lead seal broken, providing against undetected tampering. All steel parts of the re-set counter are cadmium plated for protection against rust. The key can only be removed from the lock when the counter wheels are all in zero position, and the drive gear on the idle side, or on both sides when the counter is in neutral position, is locked against creeping, it is explained. A Tobin bronze worm gear, meshing with a steel worm, is used to insure long life and trouble-free operation; and adequate provision for lubrication is made.

The worm housing is made of high grade die-cast metal, a coating of copper plate is used for protection against corrosion. This housing is lubricated by an Alemite push type fitting, and is anchored by a ⅜-inch steel rod designed to allow the housing to float freely for reducing friction and wear.

Northern sales agents of the company are J. S. Fallow & Co., 279 Union Street, New Bedford, Mass.; southern sales agents are The Terrell Machine Company, 1200 North Church Street, Charlotte, N. C.

* * *

Patented Apparatus for Dyeing Yarn on Spinning and Twister Frames

Eugene C. Gwaltney, of Macon, Ga., has been granted patents on apparatus for the purpose of dyeing yarn while it is being processed in the usual manner on the spooler or twister, according to information from Paul B. Eaton, patent attorney, Charlotte, N. C. The two patents are numbered 1,940,748 and 1,940,749. The structure of the two patents is identical except that one patent shows it disposed above a spooler and the other mechanism shows it associated with a regular type of twister frame. The upstanding post on the spooler or twister has the mechanism mounted thereon, comprising a series of upper and lower rollers. Located on the roll stand rail of the twister, and between the creel board and the bobbin winding apparatus of the spooler, there is a pair of elongated vats for holding the dye. The yarn on the machine is led from the bobbin through the movable apparatus and threaded through the upper and lower rollers, and then these rollers, with the yarn, are immersed in the dyebath so that as the yarn is wound from the cop or bobbin onto the spool, it is passed through a dyebath. This apparatus is located on each side of the machine.

With regard to the twisting apparatus, the structure is the same, and the yarn is led from the spools on the creel through the rollers and then the rollers are immersed in the elongated dye vat, one being located beside the other, and the yarn goes downward and back to the top in one vat and downward and back to the top in the next vat and is passed to the bobbin. It is evident that in both instances the yarn, as it passes from one package to another, in the process of spooling or in twisting, is passed through these vats of dyestuff to dye it.

* * *

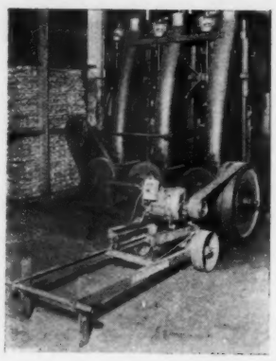
New Publication on Bracket Bearing Synchronous Motors

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has published a new Bulletin No. 1165 illustrating and describing its line of bracket bearing synchronous motors. In addition to the standard line of motors for general requirements, including exciters, control equipment, etc., the bulletin also treats motors with special features of construction, such as anti-friction bearings, enclosed collector rings, splash-proof type, enclosed fan-cooled type, and vertical motors. The bulletin also contains a discussion of the use of the synchronous motor for the improvement of power factor with examples applying the graphical method for figuring power factor corrections.

* * *

Portable Motor Drive Truck

Rockwood Mfg. Co., Indianapolis, Ind., recently announced a new portable motor drive truck with a motor on it which can be wheeled into position when a motor breaks down or needs repair, or for operating a single machine in a group without running the entire group. This, it is pointed out, prevents finding a spare motor to fit the work, fastening it to the floor, cutting a belt to suit, etc. The truck consists of a standard Rockwood drive



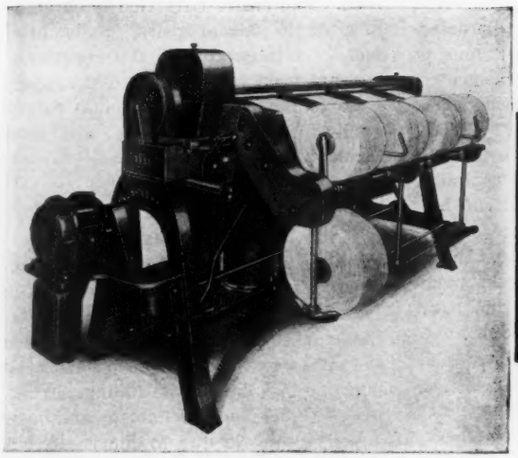
Portable motor drive truck

made as a part of a practical, sturdy truck. The motor weight is pivoted, as in all Rockwood standard bases, so that part of the weight of the motor automatically maintains tensions in the belt. Alignment of the motor and driven pulleys is quickly secured, it is pointed out, with no belt cutting necessary. Front and rear stops and stakes are used to assure solid footing when the truck is in position.

* * *

New Yarn Conditioning Fluid

Burkart-Schier Chemical Co., 1206 Chestnut St., Chattanooga, Tenn., manufacturers of textile chemicals, recently announced a new product, Penetrant H, for use in the conditioning of yarns and fabrics, in conjunction with conditioning machines which quickly and uniformly impregnate with moisture the yarn under treatment, to leave it soft and pliable, with the twist set and an adequate moisture content. The Penetrant H fluid is used in the pro-



Saco-Lowell Controlled Draft Drawing draws from laps instead of a number of individual ends of sliver.

More than 1,000 deliveries sold

Including the following Mills:

ALICE MFG. COMPANY	Easley, S. C.
AMOSKEAG MFG. COMPANY	Manchester, N. H.
BIBB MFG. COMPANY	Macon, Ga.
BOOTT MILLS	Lowell, Mass.
DANA WARP MILLS	Westbrook, Me.
ERWIN COTTON MILLS CO.	Durham, N. C.
ERWIN COTTON MILLS CO., No. 2 Mill	Erwin, N. C.
FIRESTONE COTTON MILLS	New Bedford, Mass.
GREENWOOD COTTON MILLS	Greenwood, S. C.
GRENDEL MILLS	Greenwood, S. C.
HARTSVILLE COTTON MILL	Hartsville, S. C.
KENDALL MILLS, Addison Plant	Edgefield, S. C.
KING COTTON MILLS CORPORATION	Burlington, N. C.
LAURENS COTTON MILLS	Laurens, S. C.
MATHEWS COTTON MILL	Greenwood, S. C.
NINETY-SIX COTTON MILLS	Ninety-Six, S. C.
J. M. ODELL MFG. COMPANY	Pittsboro, N. C.
PACIFIC MILLS	Lyman, S. C.
PACIFIC MILLS, Hampton Dept.	Columbia, S. C.
PANOLA COTTON MILLS	Greenwood, S. C.
RIVERSIDE AND DAN RIVER COTTON MILLS	Danville, Va.
SPRINGS COTTON MILLS, Baldwin Plant	Chester, S. C.
WARE SHOALS MFG. COMPANY	Ware Shoals, S. C.
WHITE MILLS OF NEW HAMPSHIRE	Peterboro, N. H.

SACO-LOWELL SHOPS

147 MILK ST., BOSTON, MASS.

CHARLOTTE, N. C. ATLANTA, GA.
GREENVILLE, S. C.

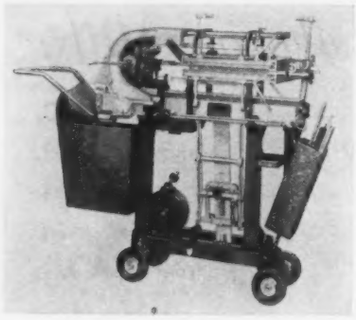
S-L Controlled Draft Drawing

portion of 1 gallon to 100 gallons of cold water in the water reservoir of the conditioning machine. The mixture is sprayed as a fine mist on the bobbins or quills. The product, it is stated, is hygroscopic, and contains an active antiseptic to check and retard mildew, with a special penetrant incorporated to produce immediate penetration.

* * *

New Portable Warp Tying Machine for Silk and Rayon

Barber-Colman Company, Rockford, Ill., manufacturers of warp tying machines for 30 years, recently brought out a new portable machine, known as Model LS, for tying-in rayon, silk and fine cotton warps from an end-and-end



New portable warp tying machine

lease. Several of these new machines have been in continuous use in mills for the past year, the company states, and while performance is governed largely by the number of ends per warp and the denier, actual production of 48,000 ends per 8-hour day has been obtained by a mill operator on average rayon warps. In the design of the machine, ease of handling was considered as a most important factor. Ball bearing rubber-tired wheels are standard equipment, and through the extensive use of aluminum the weight has been greatly reduced as compared with the Model K portable machine, it is explained.

* * *

Densimeter

Sipp-Eastwood Corporation, Keen and Summer Sts., Paterson, N. J., some time ago developed the Tensometer, a device for testing warper, quiller and winder tensions. During the course of its work, it became apparent that another device was needed to make tension control thorough and complete—a means of measuring the density of packages to insure equal density and to prevent "sloughing off" on cops and quills. The result was the development of the Densimeter, for measuring the density of cops, quills, spools and other packages, which, it is pointed out, enables the obtaining of the proper density of a quill for a given yarn number, it is explained. When the right density of the quill or cop is determined, the copper or quiller tension may be checked with the Tensometer, and if all tensions are set the same, packages of uniform density will result, the company states. Tests on a quilling machine with 20 spindles which revealed 16 variations of tension emphasize the importance of uniform tensions, it is pointed out. In the operation of the Densimeter, the package to be tested is held in one hand and the saddle of the Densimeter is pressed firmly against it. Projecting about ⅛-inch from the center of this saddle is a ¼-inch thick plunger which presses into the package and registers the density.

* * *

Booklet on Nickel-Clad Steel

Lukens Steel Company, Coatesville, Pa., recently issued a booklet on "Lukens Nickel-Clad Steel", which contains a number of illustrations of textile equipment in which this product has been utilized. There are several illustrations of equipment used in handling caustic soda for rayon work; some round-back dye liquor tanks of Nickel-Clad; some welded Nickel-Clad hoppers used in dyestuff manufacture; and a Nickel-Clad tank car used for the transportation of iron-free liquid caustic soda for the rayon industry.

* * *

Domestic Unit Added to Link-Belt Stoker Line

After field tests and development work covering many months, Link-Belt Co., 910 South Michigan Ave., Chicago, Ill., has announced the addition of a domestic unit to its line of underfeed screw type stokers which rounds out the line to a total of ten sizes covering the range of boiler capacities from the home size up to 250-bhp. In the new unit, the hopper has a coal capacity of 500 pounds; the height of the hopper above floor level; the transmission is fully enclosed, is provided with positive lubrication and arranged for five speeds. It has an accessible cleanout door, a smoke arrester, a conveniently located retort cleanout, a fan silencer, and readily replaceable shear pin. The unit is built complete at the Caldwell-Moore plant of the company in Chicago.

* * *

Single Reduction Gearmotors

The Reliance Electric & Engineering Co., 1042 Ivanhoe Road, Cleveland, Ohio, has recently added single-reduction units to its line of gearmotors. These are used for ratios up to 6:1 inclusive, and are available with both a-c and d-c motors of various types in sizes rated ¾-hp. and up. Multi-speed and adjustable-speed motors may be used. The entire reduction is obtained in a single pair of gears. Substantial feet, cast integral with the gear housing, are used to afford a solid support close to the point of maximum torque application. Ball bearings are used throughout.

* * *

Launder-Ometer for Determining the Effects of Washing

washing machine for textile manufacturers and finishers, known as the Launder-Ometer, has been placed on the market by Atlas Electric Devices Co., Chicago, Ill.; the purpose of the machine is to determine fading, shrinking, staining and mechanical action of any dyed fabric due to the treatment of commercial and domestic laundering.

The Launder-Ometer

The manufacturers point out that it is the standard washing machine of the American Association of Textile Chemists and Colorists, and explain that it "duplicates in a single test the action of many launderings in the brief space of only a few hours. A two-hour test in this machine is the equivalent of 20 commercial launderings. Furthermore, Launder-Ometer tests are strictly reproducible, being unaffected by any outward conditions."

The device is motor driven, and contains 20 jars into which small samples of the textiles to be tested are placed together with soap solution and metal or rubber balls, depending upon the amount of mechanical action desired. These jars fit into openings in a rotor which, when the jars are fastened in position, revolve radially in the tank or reservoir for the period of the test. This reservoir is partially filled with hot water which is maintained at the required temperature by means of gas, steam or electricity. Either an alternating or direct current ¼-hp motor to drive the mechanism is supplied. Formulas standards by the AATCC appear in the association's year book for use in tests.

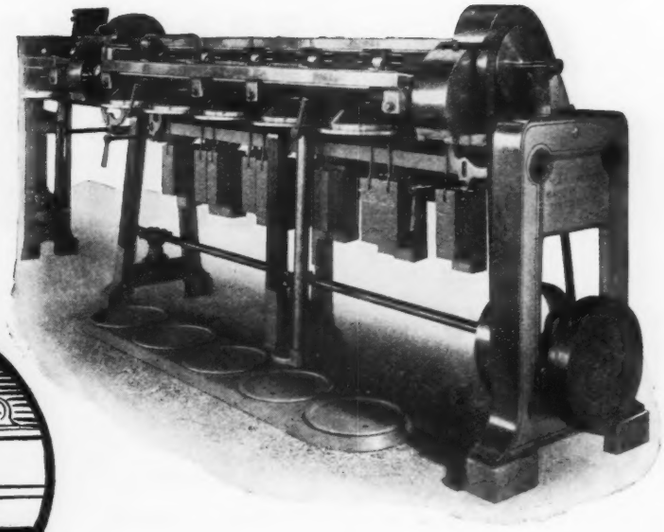
ONLY A NOSE BETTER

BUT THAT NOSE WON $10,000

Small margins of superiority become highly important, when they mean the making of thousands of dollars, whether the field of operations is a Kentucky Derby or a cotton mill.

And small margins of superiority in cotton preparatory machinery *can* often save thousands of dollars annually due to the large volume of cotton that is handled.

The improvements that make the H & B New Model drawing frame a superior product are numerous and the saving per pound of cotton that they effect, in the aggregate, when multiplied by the annual output of a mill, may well assume impressive proportions.



The many refinements listed herewith are offered with the confidence that, given the opportunity, they can make worthwhile savings for you.

• •

Further details on request

H&B AMERICAN MACHINE COMPANY

Cotton Preparatory and Spinning Machinery

PAWTUCKET, R. I.

BOSTON OFFICE • 161 Devonshire Street

ATLANTA OFFICE • 815 The Citizens & Southern National Bank Bldg.

Features OF THE NEW H & B DRAWING FRAME

All shafting completely covered, which makes for cleanliness and eliminates stoppage due to lint and dirt troubles.

Electric or mechanical stop motion.

Gears easily and quickly changed. Redesigned tube gear.

Radial throw makes a coil that fills the can to maximum and at the same time delivers readily at the slubber.

All oiling points easily accessible.

Calender roll cover plates readily swing away on hinges.

Clearers easily removed without loosening screws or nuts, and hold clearer cloth permanently taught.

Roll adjustments can be made without troublesome gear adjustments.

Overhang of machine reduced to require minimum of floor space.

All cover plates of polished steel.

H&B

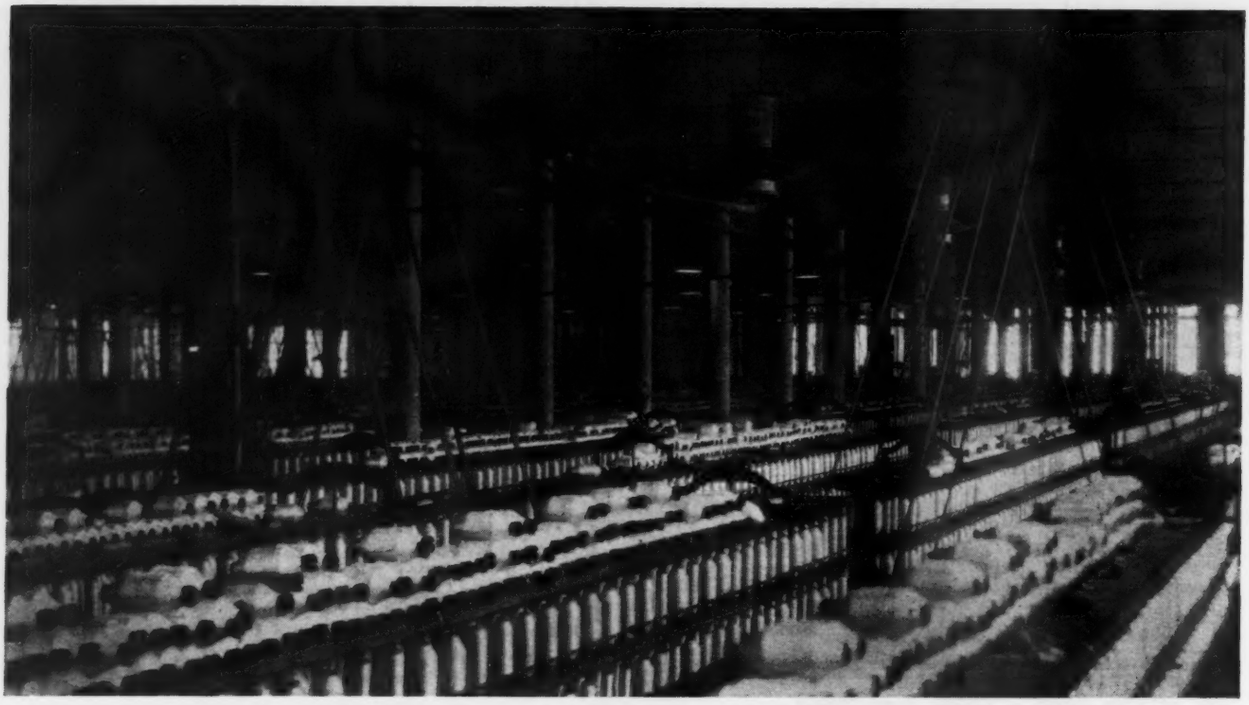
IMPROVED MODEL DRAWING FRAME

when HIGHFLEX JR.

..the jury ordered 10,000 feet

AT first the officials of Waypoyset Manufacturing Company at Pawtucket, R. I. simply couldn't believe the story of Highflex Jr. Why should they? Hadn't every rubber and fabric belt they had ever heard of given miserable service? All because these ordinary belts became extremely tight as they absorbed moisture, creating enough tension to ruin the most soundly constructed belts imaginable. No wonder Waypoyset stuck to leather.

Because of a special process of preconditioning belts, Goodrich insisted that with Highflex Jr. the old tradition about rubber and fabric belting could be knocked into a cocked hat. It was a challenge. Waypoyset accepted, bought four belts, and the trial



● *A view of the spinning room in the Waypoyset Manufacturing Company at Pawtucket, R. I.*

Goodrich

was put ON TRIAL

● *Waypoyset uses 100% Highflex Jr. in its spinning room.*

was on. Highflex Jr. performance was checked with that of leather belts, periodical inspections were made, and all findings carefully recorded.

Today Waypoyset use, not four of these belts, but 10,000 feet of them—on every one of their 124 spinning frames and everywhere else in their mills. At last they have found a rubber and fabric belt which, because it is properly conditioned, maintains tension and keeps its original tenacity and strength.

Destructive tensions are not built up in Highflex Jr. through moisture absorption, fasteners are not pulled out and edges do not fray. These mills are using almost two miles of Highflex Jr. Belting because it pays for itself within a year to 15 months through increased production.

Where all others have failed, Highflex Jr. is standing up. Goodrich engineers are anxious to pass along to companies such as the Waypoyset Mfg. Co. the secret of preconditioning belts for cotton and rayon mill service. Let us show you how Highflex Jr. will increase *your* operating efficiency.

The B. F. Goodrich Rubber Company, Mechanical Rubber Goods Division, Akron, Ohio.

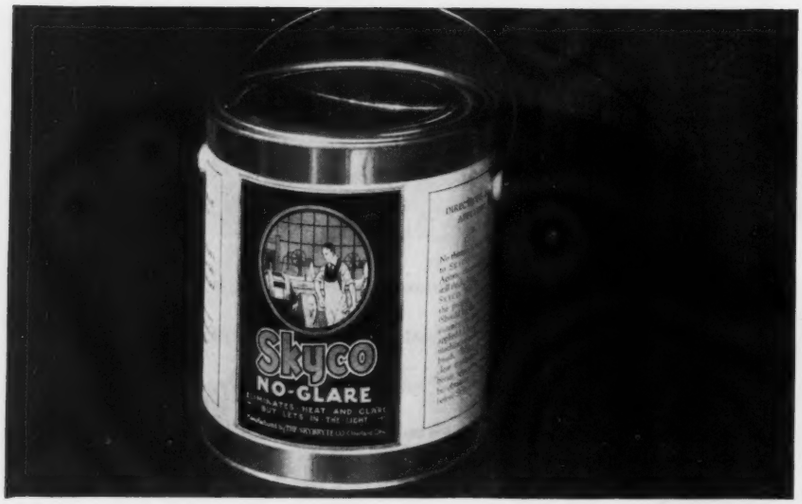
●

GOODRICH MECHANICAL RUBBER GOODS FOR THE TEXTILE INDUSTRY INCLUDE:

- *Transmission Belting*
- *Multi-V Belts*
- *Conveyor Belting*
- *Air, Water, Suction, Steam and Fire Hose*
- *Roll Coverings*
- *Packing . . . and*
- *A Complete Line of Miscellaneous Rubber Items*

ALL *products problems* **IN RUBBER**

Highflex Jr. Belting



Buy Your Window Shades in Cans

at 1-2c Per Square Foot!

SOLVE the expensive problem of eliminating glare and heat from factory windows and skylights thru the use of SKYCO NO-GLARE, the sky-blue liquid which when painted over glass filters the fierce rays of the sun—shutting out *all* of the glare and a *lot* of the heat, yet it admits 94% of the light. The cost is only about ½c per square foot of glass covered.

For ten years No-Glare has served many of our largest industries, saving them hundreds of thousands of dollars in expensive window shades. No-Glare has never been successfully imitated. If you have tried substitutes and been disappointed — try the *genuine.* If it does not live up to our claims you may return it at our expense.

The action of No-Glare is simple. It filters out the infra-red sun rays—that part of sunlight which produces heat but not light —and allows 94% of the natural light to flow through with restful diffusion.

No-Glare is easy to apply either to the inside or outside of the glass and will stay on until removed with brush and warm water. Let this economical and effective product solve *your* problem. Use the coupon or write for a 1-gallon trial can on a money-back basis.

Try NO-GLARE at our Risk

Write or Use Coupon

The SKYBRYTE Co.,
1929 E. 19th St., Cleveland, Ohio.

Gentlemen:

Enclosed find trial order of 1-gallon of SKYCO NO-GLARE at $3.50. It is understood that if we are not satisfied we can ship it back collect and our money will be refunded.

Name of Company.....

Address .....

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . . .

Lockwood, Greene Removal

Lockwood Greene Engineers, Inc., recently removed their New York executive office from 100 East 42nd St., to 30 Rockefeller Plaza, and their Boston office from 24 Federal Street to 40 Central Street. The southern office remains in the Montgomery Bldg., Spartanburg, S. C.

* * *

World Cotton Position Chart

Economic Associates, 200 Hudson St., New York City, have published "The World Cotton Position Chart", which discloses the dominant factors for 40 years of production, carry-over, consumption and developments affecting prices. High and low prices on spot Middling, New York Cotton Exchange, from 1893 to 1933 are included.

* * *

Textile Finishing Establishes Branch Office in Charlotte

The Textile-Finishing Machinery Company, Providence, R. I., announced recently the establishment of a branch office at 919 Johnson Building, Charlotte, N. C., for the greater convenience of customers in the South. H. G. Mayer and James Cook represent the company in this office. Mr. Mayer has long been the company's southern agent. Mr. Cook has had long experience in the engineering and mechanical departments of well-known plants specializing in bleaching, dyeing, printing and finishing textile fabrics, and has been connected with the engineering and sales departments of Textile Finishing Machinery Company for a number of years.

* * *

Lombard Acquires Plant of Standard Looms, Inc.

Lombard Iron Works & Supply Co., of Augusta, Ga., have acquired the building at Spartanburg, S. C., formerly occupied by Standard Looms, Inc., and will operate there the Textile Machinery Corp., manufacturing loom parts, and other textile machinery parts and castings.

* * *

Steam Separator

The Johnson Corporation, Three Rivers, Michigan, has announced a steam separator intended for application on individual steam lines serving heat transfer and process equipment; it is to be applied immediately adjacent to the point of entry to effect a practically total elimination of excess satura-

tion and condensate in the steam. It retains, as a modification of the Gast compressed air separator, the Gast patented principle of zig-zagging the moisture laden vapor through several layers of coarse mesh screen. The comparative large effective area of the screen plus the space between ports and screen, it is pointed out, permits the separator to function also as a strainer for long periods without cleaning. The threaded interior casting of the small sizes and the flanged body of the larger sizes provide ready removal of the screen for cleaning. The separator is made in sizes from ½-inch to 2-inch.

* * *

Additional Multi-Design Patent for Fidelity

On February 27th another patent was issued to the Fidelity Machine Company of Philadelphia relating to mechanism for their line of wrap stripe machines—U. S. Patent No. 1,949,314. Claim No. 1 reads, as follows: "The combination of a needle cylinder, needle supported by said cylinder, a needle dial, needles supported by said dial in interposed relation to the needles carried by said cylinder, needle-wrapping elements correlated with predetermined needles respectively, means for rotating the cylinder and the needles carried thereby with respect to the wrapping elements to vary the correlative positions of the needles relative to the wrapping elements, and means for maintaining said interposed relation between the cylinder and dial needles during the said rotation of the cylinder needles relative to the wrapping elements."

H. W. Anderson, president and general manager of the machine company has confirmed the fact that this is the seventh United States patent issued and covering wrap stripe fabric and mechanisms, and important developments in the last year covered by patent application already made indicate that still further patents will follow.

* * *

New Floor Scrubber

The Fay Company, 130 Madison Ave., New York City, recently announced the Majestic model Fay electric floor machine; the brush used is 18 inches in diameter, having a spread of fiber of 20 inches for providing large floor coverage. The brushes are fully enclosed within the housing to prevent the brush coming in contact with immovable objects. The brush speed is 120 r.p.m.; the pressure on the floor is 140 pounds; a 1-hp continuous load motor is used, and also spiral bevel and helical cut gears, and radial and angular thrust type ball bearings. The housing is cast aluminum. The bumper is of white molded rubber; and 40 feet of cable, rubber covered, is included.

PACKED and STRAPPED READY TO GO!

TEXTILE PRODUCTS WEIGHING UP TO 500 LBS. ARE SHIPPED IN CORRUGATED FIBRE BOXES « «

These strong, sturdy Hinde & Dauch boxes are substantially constructed. Their light weight guarantees maximum savings in freight costs. Their staunchness insures 100% protection in transit. Whatever your product, whatever it weighs, ship it in Hinde & Dauch corrugated boxes and reduce your costs to a minimum. Send for our handy reference book, "Corrugated Boxes and How to Use Them." It is Free » » » » »

THE HINDE & DAUCH PAPER COMPANY
454 DECATUR STREET - - - - - SANDUSKY, OHIO

HINDE & DAUCH Engineered SHIPPING BOXES

LIGHT WEIGHT » DURABLE » DUST-PROOF

H & D FACTORIES ARE AT YOUR SERVICE IN
BOSTON, RICHMOND, BALTIMORE, PHILADELPHIA, NEW YORK, BUFFALO, CLEVELAND, SANDUSKY, SAINT LOUIS & KANSAS CITY. IN CANADA, TORONTO & MONTREAL

PERSONAL NOTES
about Men You Know

Mr. Callaway

Mr. Trotter

Mr. Ragsdale

Three Callaway Mills executives figuring in recent changes in the operating personnel of these plants. Fuller E. Callaway, Jr., treasurer of the organization, is in charge of all manufacturing; M. M. Trotter, Jr., manager of the Manchester plant, is now also in charge of the Calumet plant at Hogansville, and the Milstead (Ga.) plant. B. N. Ragsdale, formerly manager of Unity Spinning, is now personnel director for all the mills. P. N. Collier, manager of the Valway Rug Mill at LaGrange and Truline, Inc., Roanoke, Ala., is now Mr. Callaway's assistant on manufacturing at these and the other LaGrange plants . . . . . .

J. W. HAMES has become superintendent of Scottdale Mills, Scottdale, Ga., succeeding JOHNSTON MCCORKLE, resigned. Mr. Hames had been general superintendent of the Adams-Swirles Cotton Mills, Macon and Tennille, Ga., and was previously superintendent of the Shelbyville Mills, Shelbyville, Tenn., and the Exposition Cotton Mills, Atlanta, Ga.

E. T. COMBS has resigned as overseer of spinning at the Pepperell Mfg. Co., Opelika, Ala., to become superintendent of the Cliffside Mills, Cliffside, N. C., succeeding P. C. HAWKINS.

HYLYARD L. LANIER has become overseer of spinning at the Pepperell Mfg. Co., Opelika, Ala., succeeding E. T. COMBS. A. A. HADDUX is overseer of carding at this plant.

R. T. STUTTS, formerly connected with U. S. Government experimental work at Clemson College, S. C., has become overseer of carding at the Lockhart plant of Monarch Mills, Lockhart, S. C., succeeding D. G. FLOYD, who became superintendent of the Cowpens (S. C.) Mills.

M. D. LINK, for the past three years night superintendent of the Goodyear Clearwater Mills, Atco, Ga., has been made assistant superintendent of the Goodyear mill recently placed in operation at Decatur, Ala. ROLAND H. GRAY, who was formerly manager of the Connecticut Mills, Decatur, Ala., which were purchased by Goodyear and started as Goodyear Decatur Mills, has resigned his connection with the Decatur Chamber of Commerce to be associated again with the mills.

E. J. WENTZ, for the past 16 years connected with the Riverside and Dan River Cotton Mills, Danville, Va., has resigned his position there as overseer of the No. 4 weave room, the largest weave room in the group, to become superintendent of the Oneida Mills, Graham, N. C.

J. D. TEMPLETON has become overseer of spinning at the No. 1 plant, Springs Cotton Mills, Fort Mill, S. C. He was formerly at the Red River Mills, Carhartt, N. C.

S. M. COLE has been made overseer of weaving, second shift, at the Avondale Mills plant at Birmingham, Ala. He is succeeded as second hand, first shift, by EDWARD KING.

R. GRADY RANKIN, formerly secretary-treasurer and later co-receiver, with A. G. MYERS, of Textiles, Inc., has accepted an executive position with Duke Power Company with headquarters in Charlotte.

JAMES O. ELSMORE, formerly overseer of weaving at the Watts Mills, Laurens, S. C., is now in charge of No. 4 and No. 5 fancy weaving at Springs Cotton Mills, Lancaster, S. C.

W. G. ASHMORE, a graduate of the Clemson textile school in 1933, recently resigned an editorial position with the Greenville Observer, Greenville, S. C., to accept a similar position with Textile World. His headquarters will be in Greenville and New York City.

BRADLEY S. ASKEW, a graduate of the textile department of the Georgia School of Technology, Atlanta, Ga., has resigned his connection with the Bibb Manufacturing Co., Columbus, Ga., to become overseer of carding and spinning at the Athens Mfg. Co., Athens, Ga. He succeeds W. D. MCCOMBS.

PAUL SEYDEL, president of Seydel-Woolley Co., textile chemical manufacturers, Atlanta, Ga., has been elected councilor of the Georgia section of the American Chemical Society. Mr. Seydel has served this body as president of the Georgia section.

WILBUR G. HUDSON has been appointed chief engineer of the Pershing Road plant of Link-Belt Company, Chicago. Mr. Hudson, a graduate of Cornell, went with Link-Belt upon leaving college; in 1908 he became vice-president of the Guarantee Construction Co., New York City, specializing in elevating, conveying and general contracting work. Later, he became president of the Wilbur G. Hudson Corp., in the same line of work. During the war he was supervisor of the North Atlantic District, U. S. Shipping Board, and a representative on the labor adjustment board. He has also been vice-president and chief engineer of the Curtiss-Wright Airport Corporation, in charge of the design and construction of their airports.

G. H. SMITH has become general superintendent of the Hart Cotton Mills and the Fountain Mills, Tarboro, N. C.

R. C. VEACH has been made superintendent of the Morgan Mills plant at Raeford, N. C.

H. C. KITCHENS, formerly at Roanoke Rapids, N. C., has become assistant foreman, second shift, No. 3 spinning, Riverside and Dan River Cotton Mills, Schoolfield, Va.

Dr. R. W. WEBB, senior cotton technologist of the U. S. Department of Agriculture, Washington, D. C., who is in charge of the cotton utility and standards research section of the Division of Cotton Marketing, Bureau of Agricultural Economics, has been made chairman of Section I on Cotton of Committee D-13 (Textiles) of the American Society for Testing Materials.

R. I. Cotton Textile Industrial Relations Board Members Named

Professor GEORGE E. BIGGS, of Brown University, Providence, R. I., has been named by Industrial Recovery Administrator Johnson as chairman of the Cotton Textile Industrial Relations Board for the State of Rhode Island. Professor Biggs represents the public on the board; LAWRENCE RICHMOND, treasurer, Crompton Company, West Warwick, R. I., represents the employer, and JOHN H. POWER, 23 Broad St., Pawtucket, R. I., represents the employee.

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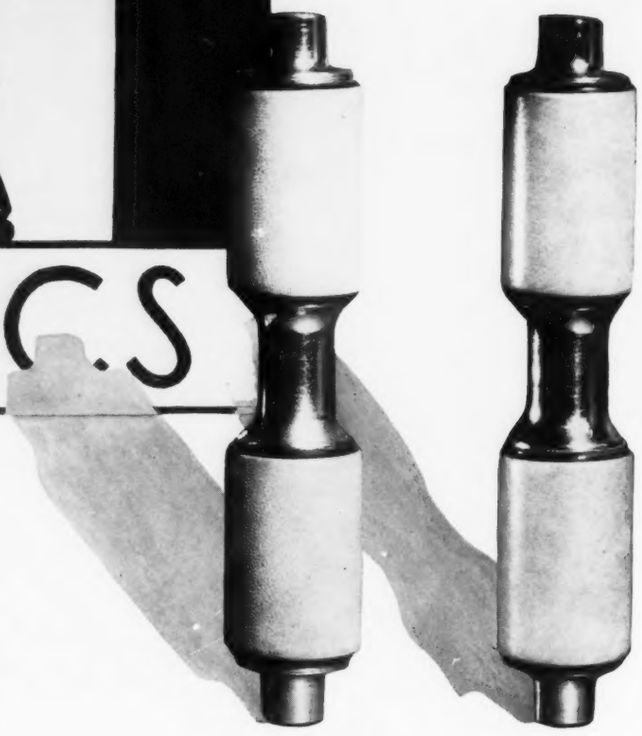

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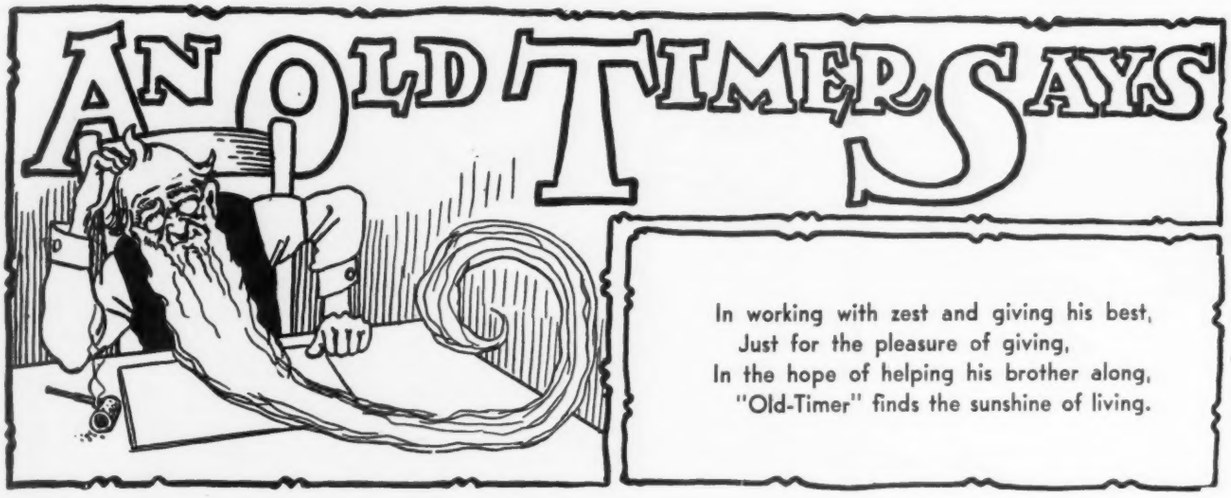
AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

The Story of Old Timer's Methods of Working and Management

Part Nineteen—Continued from February Issue

APPROACHING the end of the series, Old-Timer and Jim are found here discussing problems in the cloth room. This will be continued in the next installment. Readers interested in securing reprints of the eighteen previous installments are invited to apply to the editorial department for them . . . . . .

(Note: Since this series is written in conversational style it should be borne in mind that those paragraphs in regular type represent Old-Timer's part of the conversation, and those in *italics* are Jim's part.)

We have now covered all the departments in the mill except the cloth room, and as the OLD-TIMER page a few years ago had quite a lengthy article on cloth room machinery and cloth room management, it was felt that what JIM and I could give you under the heading of cloth room would probably be somewhat of a repetition of the former article referred to and we decided to end the series without reference to the cloth room. Therefore, we wrote *Finis* one night about 11:30 and sent the manuscript to the editor's desk.

And, glory be! that manuscript came back so quick that we thought it had just hit the editor's desk and bounced back. I think he had been trying to explode for several days—

"What do you mean, trying to end the series before you come to the end. Don't you know a cotton mill is not complete without a cloth room? Or, did you ever see a real cotton mill, etc., etc., etc."

Poor old JIM, he looked as if he had just gotten up from a long spell of sickness. We were so elated over having finished the long series, or thought we had, and then to have the thing come bouncing back. Well, I was not much pepped up myself, and JIM said,

"What in heck do they have editors for anyway?"

Damfino, JIM, but one thing I do know; if we ever expect to have any peace we had better stick in something about a cloth room.

O. K. OLD-TIMER. *Here goes.*

Well, for goodness sake, JIM, don't go to sleep now because we will soon be through. As the stitcher is the first machine in the cloth room we will start with the stitcher.

Hold on, OLD-TIMER, *the stitcher is the first machine all right, but not the first thing the overseer should give his attention to. Look at those rolls of cloth,* OLD-TIMER, *all piled up there in that rack just as they came from the weave room.*

See that roll with the end black where it rubbed the cloth rack on the loom. The overseer should instruct the stitcher men to not run those black end rolls but set them out to be sent back to the cloth room on the truck of seconds. That is the best way to show them to the weavers and weave room overseer too.

Very good, JIM, I'll agree with you.

And look at those small rolls of cloth. I thought they were supposed to take off the two-cut rolls (or the size rolls your mill is supposed to run). Then the cloth room overseer should instruct his stitcher operators to lay out every roll which has not got a cut mark on it or has been marked by the proper authority in the weave room. A roll where a warp has been tied on should have enough of the warp ends left on it to show it was a warp out and also have the fixer's mark on it. (This reasoning will not apply, of course, to mills where they take off cloth by measuring the

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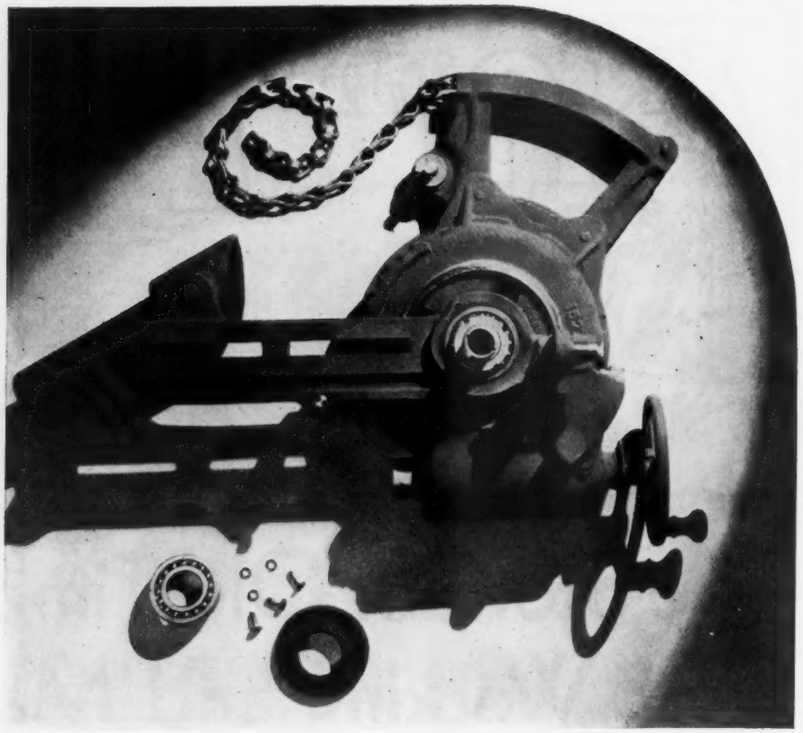

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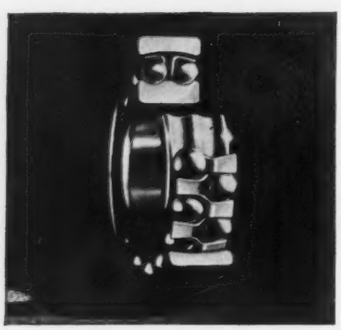

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SKF

Ball and Roller Bearings

diameter of the roll or where they take off cloth at the end of the week.) All customers are pleased with even-running lengths of cuts and this is about the best place I know of to catch the uneven size rolls. Yeah, I know what you are going to say, OLD-TIMER, *about the man who checks up should catch all these things, etc. But does he? (To answer this question, Mr. Reader, suppose you take a look at* your *pile of cloth in the cloth room.)*

Sure, JIM, sure. I have already said I agree with you; therefore, will you kindly pause now? I will start off with the stitcher?

Looks like it is running all right to me, OLD-TIMER.

Yes, JIM, but look where that boy is hooking the cloth. You see the seam or stitch is about 1½-inch from the end of the cloth. One-inch of cloth saved on each cut will soon make a long piece of cloth, JIM.

Yes, I know, OLD-TIMER, *but we do not tear that off.*

Look JIM! See that folder man? He is tearing one off now. [After JIM walked over to the folder and asked the man why he tore the cloth off instead of pulling the sewing thread out, he explained that sometimes the sewing thread gets tangled at the end or gets tied in a knot and the folder man cannot make the sewing thread ravel out and is compelled to tear the seam off]. Anyway, I still claim that the cloth should be placed on the hooks so the seam will be as near the ends of the cloth as practicable.

Look how uneven those rolls that are coming from the stitchers are on the end, JIM. The stitcher man does not seem to think he has anything to do except get the cloth in a roll. He should be taught to make a neat roll, with ends as even as possible and with the minimum amount of wrinkles. Look, JIM, that fellow is standing there holding his hand on the cloth while it is running through the stitcher and making a bunch of wrinkles on the roll. Have your fixer work over the cradles, JIM, and give your operatives some instructions as to their duties.

Stop that brusher, JIM, and let's take a look inside. There is so much dust on top of that machine I would tack a piece of heavy cloth over the hand holes and also just above the shearer blades where the cloth passes over the first iron rod. That will cut off the draft there and cause most of the dust to go to the dust house and your room will be much cleaner.

Here is a pretty bold statement; therefore, all readers who don't like it, please go look at your brushers before you say I am not talking to you. I have *never* seen a cloth room where the brushers were kept in good working condition all the time. And I have seen about as many cloth rooms as the average mill man of my age, and I was not born yesterday.

If you don't care to have the emery rolls covered with emery laid over cemented cords as they come from the builders, a very good method is to purchase very coarse emery fillet and wind it on spirally like a drum grinder on a card. Shearer blades may be sharpened several times by draw filing like we sometimes sharpen blade picker beaters, but when necessary should be taken to a planer. The rolls covered with fillet (somewhat resembling burnisher fillet for cards) may be sharpened by running the roll backwards against an emery roll or by various other means, but as it is not very expensive, new fillet when needed is the best method.

If you will put all the rolls in first-class shape—set the date down—and inspect them once per week until you see how many weeks they will operate until they need attention, then give them that attention when they need it, you will have a system that will give you as good work as new brushers *all* the time.

Here are the inspectors and here is another statement that may sound somewhat radical. I have never seen a human being who would do his or her work the same when the boss is *not* looking as they would when the boss *is* looking. Yes, I said, a human being, so that takes in operatives, section men, overseers, superintendents, managers—yes, all human beings.

Then it is up to the man who works other people to have a system or systems which will give him results from those who are working for him when he is not looking at them.

Old-Timer and Jim will finish up with the cloth room in the next installment of this series. If you wish reprints of previous installments, let us know and we will do our best to supply them.—The Editor.

Don't lie. It never has paid and it never will.

* * *

Keep busy and my! How the time does fly.

* * *

Why worry so much about how the other fellow is coming out? *You* are the fellow that you should be interested in.

* * *

You owe so much to yourself, it is darn bad business to owe anyone else.

* * *

Give your employer more than he expects and you may have the happy surprise some day of receiving more than you expect.

* * *

Success is invariably the result of knowledge and practical experience. There are two ways to get it. One is to just drift along, picking it up here and there by contact with other people and the experiences you come in contact with. Men of this type sometimes succeed, but the percentage is small.

The other way—the sure way—if you have the backbone—the determination to start it and *keep it up*, is to follow a systematic course of reading and study.

* * *

If you must knock the old man, give up your job, and when you get out, then "cuss" him to your heart's content.

* * *

"Even in the dictionary the word success comes after the word hustle."

* * *

If you spend all you earn don't call some other fellow a fool. Because you are it.

Talk about borrowing money—well you generally have to have collateral, but you can borrow all the trouble you want without any security.

* * *

So many overseers and superintendents cannot see the wisdom in paying one or two dollars subscription for a textile magazine, still, they would pay ten dollars for one idea they are likely to get out of the magazine in a year.

* * *

A lot of men have to work like the dickens to try to overcome the mistakes they have made. Mistakes are valuable to any man as experience, provided he profits by them. The way to do that is not to make the same mistake twice.

* * *

Some people criticize because of a mere mania for opposition, some because of jealousy and some are just darn fools.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Editor's Note—On page 105 of the February issue of COTTON, in his article "An Overseer's Ideas on Maintenance Methods", "Contributor No. 6123" offered to give a set-up that will make 30s warp yarn break 60 pounds, made from Strict Low Middling cotton and a 70-grain card sliver. So many inquiries—from South Carolina, Massachusetts, and other states—were received asking for the details that this contributor has prepared the detailed lay-out for publication. It reached us too late for use this month, but it will appear in the May issue if it is at all possible for us to present it in that number.

Paying Slasher Tenders By Piece-Work

EDITOR COTTON:

I would be very much interested in seeing published the opinions and practices of the readers of COTTON with reference to the idea of paying slasher tenders in the slasher room on a piece work basis. I hope your readers will express their views through "HOW OTHER MEN MANAGE".

CONTRIBUTOR NO. 6312.

Effect of Twist on Yarn Strength

"While increased twist may raise the yarn strength, the best twist is not necessarily the highest twist; there is a happy medium" . . . . . .

EDITOR COTTON:

Twist is put into yarns for one primary reason: to strengthen it. This, however, is not the only use of twist in yarns. Yarns are made in a range of twists, from a comparatively small number of turns to a comparatively high number of turns. These yarns have their own specific uses and ought not to require any explanation.

But the question arises: What is the number of turns of twist that gives the strongest yarn? We know from our own experience that a small number of turns does not give us a strong yarn, and as we increase the number of turns of twist in the yarn it becomes stronger. It has generally been concluded then, from these observations, that the more twist the yarn contains the stronger it becomes. The only objection to higher twist yarns being the slowing down of production on the spinning frame, and also the cumbersome handling of excessively twisted yarns.

But, let us stop and consider the matter. Does excessive twist really strengthen the yarn? If not, what is the best possible number of turns to be put into a yarn to produce the strongest results?

The following results of tests taken to tabulate some data concerning the foregoing questions may be of assistance in arriving at a conclusion for an explanation. The tests were made on a 20s/1 carded yarn, spun onto a filling bobbin with filling wind. The yarn was made from 1 1/16-inch American Middling cotton. The roving was made all on one frame or machine of each operation. Settings were all standard and no changes were made once the machines were set. The only difference in the make-up of each yarn was the amount of twist put into each at the spinning.

Under these identical conditions the results obtained should be very nearly correct inasmuch as the actual tensile strength tests were conducted all on the same day and after the yarns were properly conditioned (65 per cent relative humidity and 70 degrees F.), which conditions were kept throughout the testing.

The amount of twist put into each yarn was determined by a twist multiplier, (multiplier $\times$ square root of count = T. P. I.) the multipliers used being as follows: 2.5, 3, 3.5, 4, 4.5, 5, 5.5. The averages computed were the results of eight bobbins of each twist, ten breaks from each bobbin were taken, making a total of 80 breaks for each twist. The Scott breaking machine was used. The skein length was 120 yards.

The averages of the results are as follows:

Twist Multiple	Break in Pounds
2.5	29.25
3.0	84.00
3.5	94.50
4.0	102.50
4.5	104.30
5.0	102.80
5.5	92.50

These averages lead us to the conclusion that a twist multiplier of 4.5 gives us the best strength on 20s/1 carded yarn made under conditions as the yarn mentioned or tested was made.

The test also brought out the sharp rise from our 2.5 twist multiplier break to the 3. multiplier break,

---

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

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and then the not so sharp but decided increase in each twist until the 4.5 multiplier was reached, after which the yarn began to weaken almost in an identical manner as it was strengthened by increasing twist previous to reaching the 4.5 multiplier.

We cannot say, however, that this 4.5 multiplier is the best to use in making up a yarn for strength alone. There is no doubt that other yarns have other turning points. It also does not definitely show that the 4.5 multiplier is best for 20s/1. We of course must consider many factors: staple, kind of cotton, processing, settings, drafts, etc. All of these have a decided effect on the strength of the yarn and must be considered.

The yarn for the test reported was made from an average mill lay-out and naturally was considered a 20s/1 carded yarn, one that would be satisfactory for a test of this sort.

The test does, however, definitely prove that excessive twist weakens any or all yarns.

P. R. K. (MASS.)

More Opinions on the Value of Greasing Shuttles

See also the thorough discussion of this subject, page 77, March issue . . . . . .

EDITOR COTTON:

I am answering the question of "CONTRIBUTOR NO. 6300" with reference to putting tallow on shuttles. We have at our mill resumed this practice in recent years, in order to increase the life of the shuttle. Tests which we have made clearly demonstrate an increase in life of the shuttle of from 23 to 38 per cent as a result of putting tallow on them.

We apply the tallow once a month, during the first week in the month, using an edible tallow. We put it on the side which runs next to the reed and also in the screw eye, and some on the front of the shuttle.

When we are installing new binder and box plates, we paint the leather with boiling tallow. This is put on the back leather after it is cemented to the wood binder, and the front box plate leather is also painted.

I would be interested to read the experience of other superintendents on this point.

CONTRIBUTOR NO. 6305.

EDITOR COTTON:

I notice on page 109 of the February issue of COTTON that "CONTRIBUTOR NO. 6300" has brought up the question as to the advisability of the use of tallow on shuttles in the weave room.

Away back a long, long time ago I discovered, as a loom fixer, that on a Crompton box loom, a little tallow on a shuttle saved me a lot of fixing on damp days, so I used to plug the shuttle pin holes with tallow.

In 1897 I got some of the first Draper looms and I soon found out that a shuttle that runs as steadily as one does in a Draper loom, soon becomes brittle and the leather in the boxes becomes very hard, so

I had the shuttles rubbed with tallow every Saturday and found that they ran better and longer.

At our plant when a new shuttle is put in the loom the four screw holes are filled with tallow and we are reasonably sure that the life of our shuttles is longer than they would be without the tallow. Here are the reasons (at least mine) for tallow: First, to keep the shuttles in much better condition so that they will not splinter so easily as with tallow; second, to act as a sort of moisture preventive, for where there is humidity the shuttle is bound to become sticky and this is what the tallow prevents; and, third, the tallow also keeps the leather in the boxes soft and gives a better check requiring no excessive power to drive the shuttle home. It also may be claimed that the tallow keeps the reed lubricated without staining the yarn.

CONTRIBUTOR NO. 6304.

Where are the "Long Card Draft Boys"?

EDITOR COTTON:

On page 36 of the November 1933 issue of COTTON, in the report by the Editor of the discussion meeting held in Gastonia, N. C., on October 20, we read the following:

"Next the relative merits of heavy, slow carding, versus light, fast carding came up. Mr. Dilling pointed out that about 12 years ago this question was pretty thoroughly studied and that it had come up again. 'None of us card heavy like we used to,' said John W. Long, 'and we all prefer light, fast carding over slow heavy carding. You can get a cleaner web.'

" 'I am like Mr. Long, I would rather have a light sliver and fast doffer,' said Mr. Williams. 'I used to think just the other way around, but made a number of tests, on short draft and long, and came to the conclusion that about 120 is a mighty good draft on 1 3/16-inch and 1 1/4-inch cotton.' "

The gentlemen quoted above need no introduction: they compose a part of the "brain trust" of your southern cotton mills.

This is very pleasing to me, for you know that has been my preachment for over 20 years.

Now, let us do a little "retrospecting".

In the December 1923 issue of COTTON, page 137, "A. L. J." wanted to know if doubling the weight of a sheet of lap and also the draft of the card will increase the breaking strength of the yarn. My answer, published on page 428 of the February 1924 issue, was of course, "No".

No doubt "A. L. J." had noticed some of the articles by "TOM (MASS.)" that had been running about that time and which advocated an 18-ounce lap.

In the December 1923 issue, in discussing "uneven yarn" I wrote as follows, in part:

"I hardly ever visit a cotton mill office without getting a glance of a copy of COTTON on some desk. Then I am ushered into the mill, and find 66-grain sliver on the cards, 75-grain finished drawing sliver, .45-hank slubbing, 1.25-hank intermediate roving, and a jump to 5.00-hank fine roving. Then I am

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taken to the spinning room and am told that the work runs very uneven, and that no matter what they do they have yet to find the right remedy.

"In such a case, I say nothing, for I know I am up against one of those 'long draft boys'."

Just by the way, what has become of the "long draft boys"?

Regarding the "long draft boys" of a few years ago, I am reminded of a story where a gentleman attended a meeting and while the speaker was delivering his address, this gentleman fell asleep. The chairman noticed him, and hit him on the head with a mallet. The gentleman looked up and said, "Hit me again. I can still hear him."

Let me see, there were "K. C. (CONN.)", "TOM (MASS.)", "K. Y. (MASS.)", "A. B. C. (R. I.)".

I wonder if they are converted? If not, why haven't we heard from them?

When you have a long draft on a card you reject the laws of friction, moderation and compensation.

I am going to prove it.

In the January 1922 issue of COTTON I put the following question to the long draft boys:

"What gives this increase of strength between a draft of 90 and 140 when the cleanest grade of stock is used?" The question was never answered.

I always smile when I read an advertisement that claims that any machine or part will increase the breaking strength of the yarn. A machine can make a better yarn, and at the same time retain to some degree the strength of the yarn, but that is all. The action on the fibers between the bite of the feed roll and the licker-in is where the stock receives the most injury. The longer the fibers, and the longer the draft, the more severe treatment the fibers receive.

To argue that the same number of points pass through the fringe and that the same amount of stock passes through the card is a very poor argument.

Why do we need to have three different kinds of feed plates for different stocks? The reason is that long ago such heavy carding was done that the heat at this point would cause the feed plates to cake.

If any of the readers have a tester on hand, I would like to have them make the following test: The normal strength of a white fiber of cotton should break between 110 and 115 grains. Now break the fiber in its raw state. Next run the stock through and stop the card and remove the fibers from the licker-in teeth. Do this first with a draft of 90 and then with a draft of 120 and then with a draft of 150. Break about 20 fibers from each different draft and you will notice that the longer the draft the weaker the fibers.

The test can easily be made.

All you need to do is to change the draft and run the card only a minute.

The strength of a cotton filament is in the number of convolutions. Therefore, if you expose the fibers to the licker-in for too long a period, you destroy some of the convolutions and weaken the fiber.

Can there be any argument on that point?

WASH (R. I.)

How to Clean Ring Rails--by "Wash"

EDITOR COTTON:

In the November 1933 issue of COTTON "CONTRIBUTOR NO. 6265" wants a discussion as to the cleaning of ring rails. The writer has been superintendent for years and you can accept the following as one of his orders:

Place the ring rail on two roving boxes. Next, break all travelers. Then saturate a portion of cop waste with common oil, and rub the rail and rings thoroughly.

To dry the rail, have a pail or barrel of sawdust, take a portion of dry cop waste and apply the sawdust freely until the rail and rings are dry.

Next, place the ring rail back on the frame, and give all rings a good rubbing with graphite. Next, snap back the travelers and away you go.

WASH (R. I.)

Comments on "Wash" -"A. T. G." Discussions

Suggests a test for that drawing frame draft; and asks "Wash" to "lay off" of the college boy and stick to mill problems . . . . . .

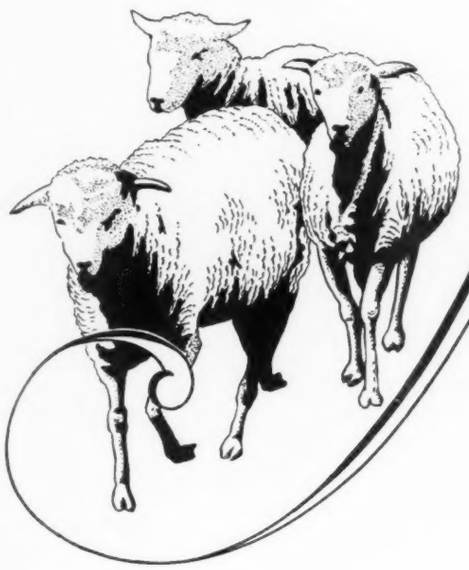
EDITOR COTTON:

I have been a firm believer in COTTON for a good many years and still believe it is a good magazine, but there is one thing in particular which does not appeal to me in the least and that is the discussion between "WASH" and "A. T. G." pertaining to the textile graduate. I think it is very "little" in both parties to continue such a discussion.

I want to say here that I am not a college graduate; just a high school boy with a textile course which was taken after I was promoted to second hand. I do not hold anything against the college graduate and I am not jealous of one. For goodness sake, tell "WASH" to lay off of the college boy. He has his ups and downs as much as any of us. Why not turn our thoughts to mill problems and discuss them? That is really what we want to hear and read.

I take my hat off to "CONTRIBUTOR NO. 6123" for his little piece entitled "A Slant on Human Relations", on page 77 of the November issue of COTTON. That is the kind of stuff that makes the world go round and helps to down Old Man Depression.

Suppose "WASH" and "A. T. G." settle their argument about the draft from the front roll to the calender roll on drawing by actual test. Take one yard of sliver delivered from the front roll, and lay it flat on a one-yard board and cut it off and weigh it. Then go back, put the end up and take one yard that has passed through the trumpet and calender roll and cut this in the same way, and weigh it. Dividing the first weighing from the front roll by the last weighing from the trumpet and calender roll, will give the actual draft, not by figures, but by actual draft. I really think that every card room overseer would be surprised in his draft from the back roll to the second roll, second roll to the third roll, third roll to the front roll, and so on, if he measured and weighed his



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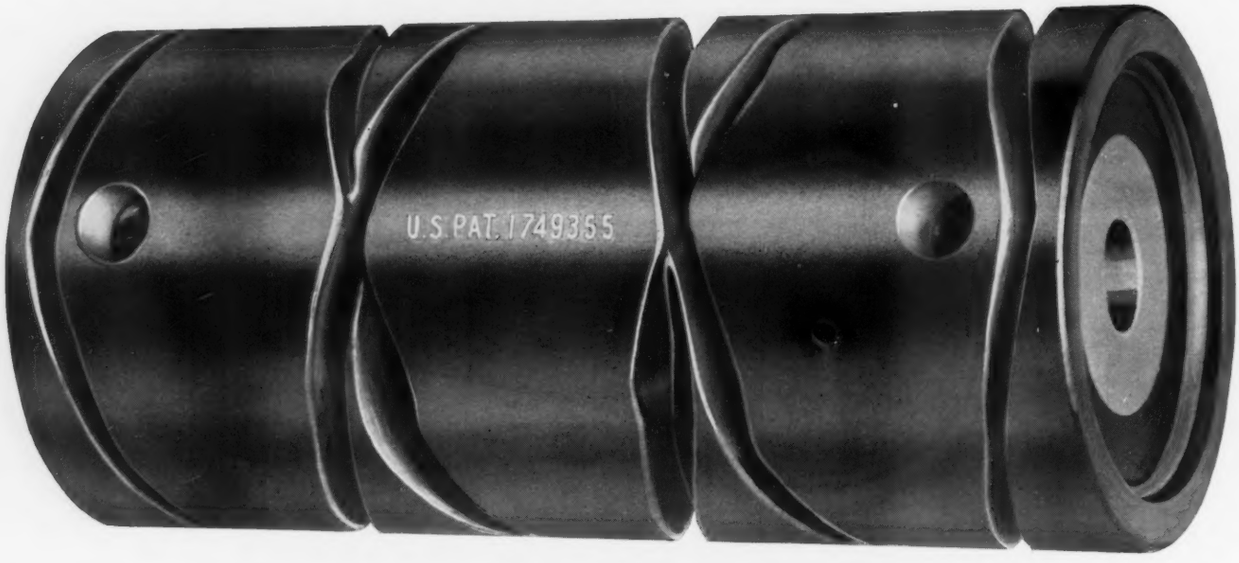
Wear and tear, due to parts reciprocating at high speeds, are eliminated. Nine wearing contacts, as in the usual drum winder, are reduced to one, — the groove.



This contact surface shows no appreciable wear after years of operation. Maintenance charges and shutdowns, therefore, are no longer a factor. These points, and other features, open the way to winding speeds of from 700 to 800 yards per minute. This affords important economies under present conditions of mill operation.

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stock going through in this manner.

I also want to state that I am satisfied in my own mind that "WASH" does not mean to claim that he knows all there is to know about manufacturing and mill management. If he did he would be one of the ten wonders of the world. So let's go, and have UNCLE WASH give us some more good articles, as he and OLD-TIMER know how to do. I enjoy them all and get a great deal out of them.

W. L. (S. C.)

Licker-in Speeds and Card Drafts

An eastern carder gives here the results of recent tests on these subjects. Other opinions are invited.

EDITOR COTTON:

I have read a good many of the discussions in COTTON on different points in the card room, but I do not recall ever having read much of anything in regard to licker-in speeds and card drafts on long and short staple cotton. I thought that this might be an interesting subject and that this letter might start some discussion along that line.

Speaking of licker-in speeds, and as to which is best, high or low; some time ago I read an article in an English textile magazine on licker-in speeds. I do not recall the writer's name, but that does not make any difference. This man claimed that he got the best results with his licker-in speed at about 640 r.p.m., also, that he got a cleaner yarn and a better break. I don't doubt that the yarn was cleaner, but I am afraid that this break would be down a little, as the licker-in going at this high speed, which is equal to 1,508 feet per minute, would be likely to break or weaken a good many of the fibers, which would surely result in a weak yarn.

Shortly after reading this man's article I made three tests in order to satisfy myself. I ran a test with a licker-in speed of 329 r.p.m. I made another at 428 r.p.m., and then another one at a speed of 636 r.p.m. I will give the actual results of these three tests as I got them. My first test was with a licker-in speed of 428 r.p.m., and I shall call this *Test No. 1:*

Finished sliver	87.7	per-cent
Flat strip	9.42	per cent
Cylinder strip	1.34	per cent
Cylinder and licker-in fly	.577	per-cent
Motes from under mote knives	.577	per cent

This went into 60s warp, which sized 60.98 and broke 32 pounds.

The next test was with a licker-in speed of 329 r.p.m. I will call this *Test No. 2:*

Finished sliver	88.2	per cent
Flat strip	8.5	per cent
Cylinder strip	1.34	per cent
Cylinder and licker-in fly	.577	per cent
Motes	.577	per cent

This also went into 60s warp, and sized 60.61 and broke 34 pounds.

The next test was with a licker-in speed of 636 r.p.m. This I have called *Test No. 3:*

Finished sliver	87.7	per cent
Flat strip	9.40	per cent
Cylinder strip	1.34	per cent
Cylinder and licker-in fly	.673	per cent
Motes	.86	per cent

60s warp; sized 60.73; broke 30 pounds.

(Cylinder and licker-in fly is what was taken out from under the cylinder and licker-in forward of the division door under licker-in.)

It will be seen that I had considerably more droppings under the mote knives on the high speed licker-in, and this consisted mostly of short fiber and some long fiber, which proved to me that the high speed licker-in was plucking the cotton out in bunches besides breaking some of the fibers. The break in these tests also shows me that the high speed licker-in is all wrong, as far as long or medium staple cotton is concerned. I don't doubt but what high speeds on very short, dirty cotton would work out pretty well, but I would not suggest any such speed as 640 r.p.m.

Card Drafts on Long and Short Cotton

Now I should like to make a few remarks on card drafts for long and short staple cotton. I think that most carders realize that the short cotton fiber is larger in diameter than is the long cotton fiber, and that the longer it is the finer it will be. It will also be found that the long cotton is much cleaner—freer from trash, motes and neps—than is the short staple cotton. Therefore, it will not require the same amount of cleaning as does the short, dirty cotton, and, the fiber being finer, it will not stand the same abuse as will the short cotton.

Now, taking all of this into consideration, it is my opinion that card drafts should be governed by the cotton to be run. We would surely never think of running a draft of about 120 or 125 on long Pima, Sak or Sea Island cottons, which, I think, would be a crime, but if the cotton is short and dirty, a long card draft would be the sensible draft to use.

The following lap weights and drafts are what I think should be used on the different lengths of staple:

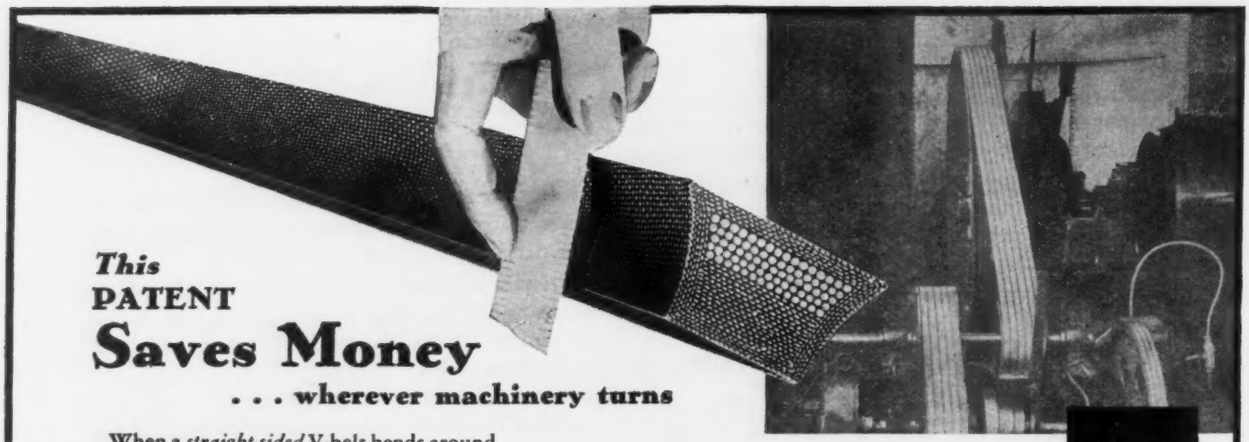
For 1-inch to 1-1/8-inch dirty cotton, I should use a 15 to 17-ounce lap in the card with a draft of from 120 to 125.

For 1 1/4-inch to 1 3/8-inch staple cotton, I should use a 12 to 14-ounce lap with a draft of 110 to 115.

For long staple cotton such as long Sak, Pima and Sea Island, I should use an 8 to 9-ounce lap with a draft of not more than 90, and on this long cotton I would keep my licker-in speeds down to about 300 r.p.m.

These are my ideas on lap weights and card drafts, but I know that most all mill men have different ideas on these points, though I doubt if any of us know it all, and I think that this textile magazine is as good as any other place in which to learn, so do not hesitate to come back at me.

R. G. (R. I.)



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Dec. 27, 1933

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We do not need any more cones for the 9x4½ intermediate and should like to know if you cannot turn this cone to fit our 8x4 speeder. If this can be done, we shall appreciate your making the two cones that we are returning for the intermediate into cones for an 8x4 Saco-Lowell Speeder.

Our only complaint we have on this work is that we should like to have it speeded up in order that we may complete our entire installation more promptly.

Trusting that you will let us have this shipment back as soon as possible, we beg to remain

Yours very truly,
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More About Setting Front Plate on Cards to the Flats

Still doesn't see how this is practical, or necessary to secure desired results . . . . . .

EDITOR COTTON:

I have been much interested in the March issue, page 78, in the further explanation of "CONTRIBUTOR No. 6181" in reference to his suggestion, originally published on page 74 of the January 1933 issue of COTTON, that the front plate on a card should be set to the flats, and not to the cylinder as I had always done it.

I am going to suggest that your readers now refer back to my article on page 73 of the January 1934 issue, in which I quoted this man's recommendations on this point and endeavored to show why I did not see how this could possibly be practical. I pointed out in that article that the bend supporting the top plate, the stripper door, and the bottom plate, is set by means of a draw-bolt near its top end, and another near its bottom end, and that these two bolts can only be moved "in" or "out", so that I failed to see how you could raise or lower the top plate.

After reading this article from me in the January 1934 issue, "CONTRIBUTOR No. 6181" wrote, in answer, the one which you published on page 78 of the March 1934 issue. Here is the further explanation he gave, as to how to do what he suggested about setting the front plate to the flats. I quote:

"Take off the percentage or front plate or top plate or whatever you care to call it, by taking out the cap screws, and file the holes in the plate so it will go up or down, wherever it is desired to put it. I set this in the center of the flats for no other good reason than that I find the center is about the easiest place. You can set at the heel or toe, if desired, using a 5 or a 7-gauge in place of a 10".

Now, had "CONTRIBUTOR No. 6181" explained the detailed setting in his original article we would all have understood him, and I regret that he feels that he has been "maligned" by my pen. That's a hard word and I am sure that "CONTRIBUTOR No. 6181" used it in a spirit of levity.

In self defense, I must say that my experience has not been confined to books, as he would seem to have you fellows believe in his letter in the March issue. Quite the contrary, because I speak the truth when I say that I have faithfully experimented with the card, hoping to make it do better work, and not to be a "smart Alex". I will agree with the manifested spirit of "CONTRIBUTOR No. 6181", that progressiveness results from practical experience—and yet the books have their place which nothing else can fill.

Now, getting back to the explanation which he made in his letter in the March issue, I would just like for him to tell us, after he had filed the holes in the plate so that he could raise it up or down, what he did with the stripper door and the bottom front plate? He necessarily had an opening there, created by raising the plate in question.

Pending the receipt of his explanation I shall have to guess—and my guess is that he raised the stripper door and the bottom front plate also. If that was the

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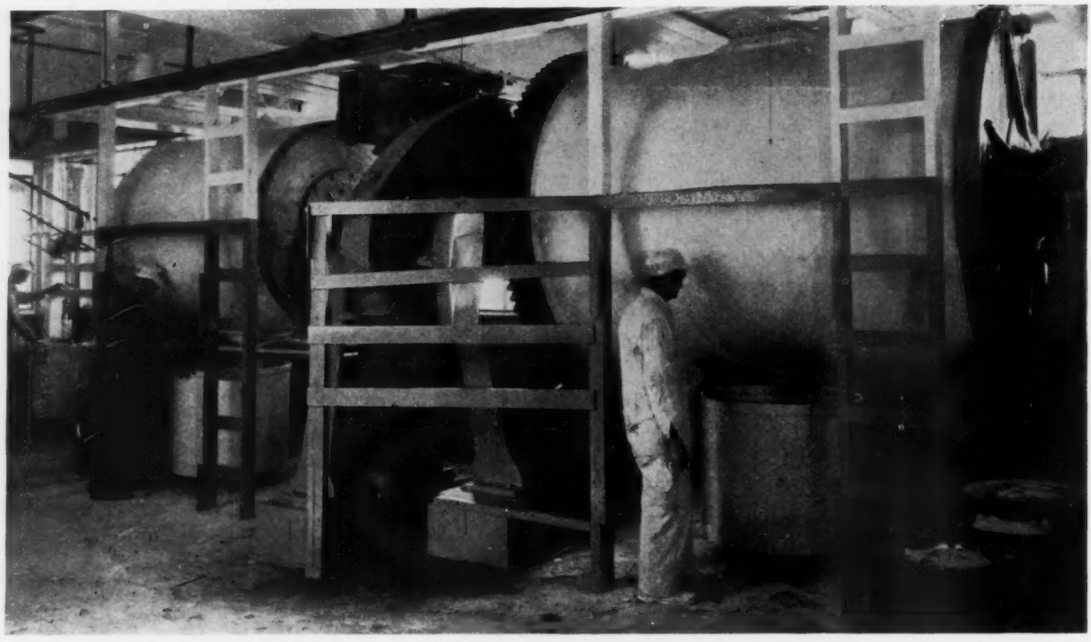

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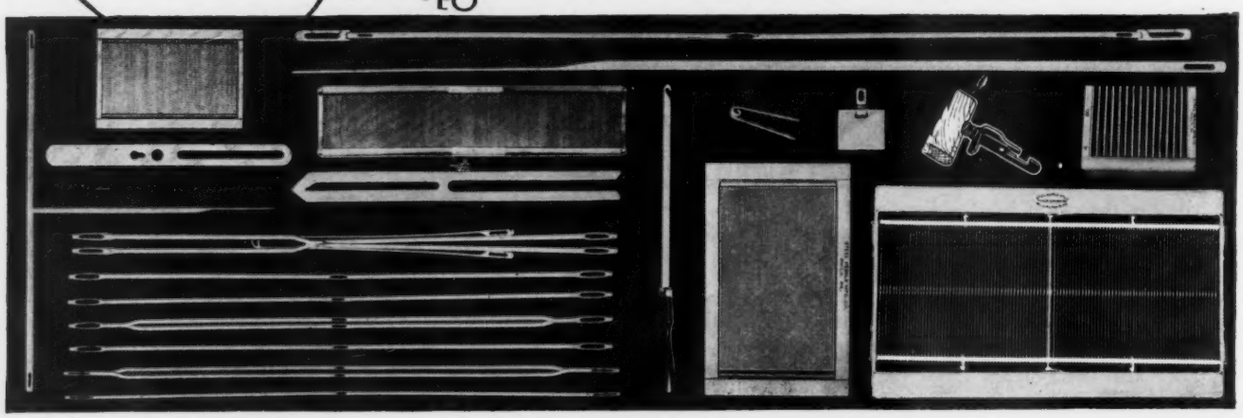

case, then he had to file quite a few other holes.

Granting that he did—how much did it cost to "fix" one card (it takes a long time to file, I know from my personal experience) and one other question, why the necessity or the reason of going to this expense and at the same time ruining these plates by filing them, when he could take out as little or as much waste as is consistent with manufacturing by using the plate in the manner the machine builders intended it to be used or adjusted?

I heartily agree with "CONTRIBUTOR No. 6181" further down in his article, when he suggests a wide setting between the doffer and doffer comb, so long as he doesn't get far enough away to allow the web to roll up between the doffer and the comb.

Now, if I have actually maligned "CONTRIBUTOR No. 6181" I humbly apologize, but if it is a fancied wrong I have no comment to make.

CONTRIBUTOR No. 6123.

"Wash" Tackles "6123" and "K. Y."

EDITOR COTTON:

I see in the December issue of COTTON that "CONTRIBUTOR No. 6123" has his hat off in the air to "A. T. G." for the way he answered my questions. After reading his article, it was plain to me that he was a poor judge of the subject. I think he has probably changed his mind after reading my article in the November 1933 issue.

This contributor tells a story about two veterans of the Union and Confederate armies. That story originated in London, England, about the year 1900, soon after the Boer War. It was an Irishman that addressed the Englishman in the same manner as did the confederate veteran. "CONTRIBUTOR No. 6123" states, "Yet I do appreciate the moral of the story"—evidently he means that I am supposed to be half shot to pieces.

I will come out of this scrap (using his own words) without a scratch, for the source of my logic is not dope.

In his third paragraph he states that he agrees 100 per cent with "A. T. G." in his answer to my question as to the causes of the picker lap being larger at one end than the other.

Well, let us see. It takes about seven minutes to make a lap on a breaker picker. Therefore, if the lap is made smaller at one end, so that it can be detected at a glance, surely three pounds of raw stock has found its way to the dust room. Next figure the number of laps made per day, per week or per month, then try to figure the size of the dust room. To every practical man "A. T. G.'s" answer to this is a joke.

In his fourth paragraph, "CONTRIBUTOR No. 6123" states, "Perhaps 'WASH' never knew what trouble electricity could and does cause, especially on dyed stock and more particularly on black." The readers can see that the graduates know about as much as one another, and if they keep on answering my logic, we shall know more about their real worth to a mill.

Electricity will cause the webs to break, but not continually, as put in my question.

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As to what he says in his fifth and sixth paragraphs, I refer him to my article which appeared in the November issue, after apparently he had written his article that appeared in December.

This discussion is getting voluminous, so in order to cut it short and save space, I would like to have "CONTRIBUTOR No. 6123" answer the following:

You state that you agree 100 per cent with "A. T. G." Then you agree with what he states about the English builder.

Why did you explode your knowledge that I know you lack, instead of crying, "What a man, what a man!"

From the two articles that have appeared, I am sure you are ashamed of what you state in your seventh paragraph.

Following your article we find where "K. Y (MASS.)" disagrees with "A. T. G." regarding the English builder.

What a man—is right.

Tell us why the terms are used, such as the figured draft, actual draft. Answer the above and prove your practical experience and technical training which you claim you have.

Now, let us go back to page 78 of the August issue of COTTON and let us read the last two lines in the 4th paragraph of "A. T. G.'s" empty article which states "It teaches them (meaning the graduates) to analyze and to think wisely and conservatively."

Now let us next take a look at the article following that of "CONTRIBUTOR No. 6123" in the December issue, written by "K. Y. (MASS.)" This gentleman agrees with what I stated about the English builder and goes on and gives a perfect explanation of it. But he spoils his short article by stating that I deserve a few knocks on the head. Next he disagrees with "CONTRIBUTOR No. 6123."

Well, now, that is all I did, try to correct "A. T. G." and if I deserve a few knocks on the head so does "K. Y."

Is the above thinking wisely and conservatively as taught in the textile school?

I am not against a graduate such as "K. Y.", for I know he is a practical man from the way he explained the English builder. Such men as "K. Y." make our best mill men. In other words, he knows what he is talking about.

However, I repeat that I am against promoting a textile school graduate or student who lacks experience and practical knowledge. See the point?

But what puzzles me is that "K. Y." agrees with "A. T. G." in most things. Then, as a favor to me, and one that I would appreciate very much, I hope he will answer the following questions, which I know he can:

Can enough stock escape from one side of a cage to make the lap so uneven that it can be detected at a glance?

If you are running a 60-grain sliver from the card, and change it to an 85-grain sliver, will this increase the tension between the drawing and calender rolls?

If you have a 6-head delivery drawing, and one half is sagging more than the other, what would you do?

WASH (R. I.)

Gives Card Settings on Staple Cotton

EDITOR COTTON:

In the January issue, page 65, "D. H. (N. C.)" asked what feed plate setting will give the best results in regard to breaking strength, using Strict Middling 1 3/32-inch and 1 5/32-inch cotton, 120 card draft; 40-grain card sliver; 12-ounce lap.

I will try to answer his question, but will not say that the settings which I give will work out the best for his particular needs. As has often been said, what works in one mill may not work in another mill. However, I will give the settings which I have used with satisfactory results on cards running 1 3/32-inch and 1 5/32-inch cotton.

While the feed plate plays a large part in regard to the breaking strength obtained in the yarn, there are plenty of chances of the fibers being injured before they reach the cards and also after they leave the cards.

To begin with, I believe that one of the most essential things in obtaining strong yarn is the number of blows per inch which the cotton receives at the pickers. If "D. H. (N. C.)" is beating this particular stock—1 3/32-inch Strict Middling—more than 80 blows per inch, I believe that more harm than good is being done to it. It is also very important to pay careful attention to the setting of the beaters. I find that on the blade beater 3/8-inch and on the Kirschner 1/8-inch from the feed rolls will be satisfactory.

"D. H." did not ask for any information in regard to picking, but I merely suggest these points in the hope that they may prove of some benefit.

I will list my card settings and feel safe in saying that if "D. H." tries them he will obtain good results, as I have used these settings on tire yarns and, as everyone knows, strength is the main factor in this type of yarn. My settings are:

Doffer to Cylinder	7/1000
Licker-in	7/1000
Top Knife	15/1000
Bottom Knife	10/1000
Stripping Plate	22/1000
Back Plate	22/1000
Doffer Comb	12/1000
Flats	10/1000
Cylinder Screen Front	1/8-inch
Cylinder Screen 2nd	34/1000
Cylinder Screen 3rd	34/1000
Cylinder Screen Back	17/1000
Feed Plate	10/1000

With a 12-ounce lap on 1 3/32-inch and 1 5/32-inch stock, I have found that the best results are obtained by setting the feed plate to a 10/1000-gauge. I have also set to a 12/1000-gauge with no difference noted in regard to break, but have found a decrease when setting to less than 10/1000. By setting closer than a 10/1000-gauge on this staple one is very likely to break the fibers and also cause a little twist.

I would like to call the attention of "D. H." and other readers to the fact that I set the stripping plate to the cylinder, and not to the flats, as does "CONTRIBUTOR No. 6181". (The reader will know what I mean by reading the very interesting letter on this point on page 73 of the January issue from "CONTRIBUTOR No. 6123".)

CONTRIBUTOR No. 6244.

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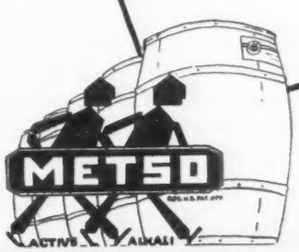

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Bow in Weaving Heavy Fabrics

Answering an inquiry from England resulting from the discussion on page 114 of the October 1933 issue . . . . . .

EDITOR COTTON:

I have received your letter forwarding an inquiry concerning bow in cloth* from a subscriber in England. He states that he "has been interested in this subject for some time but particularly with regard to heavy fabrics. The fault of bow is more pronounced in heavy goods than in light ones, and the writer would like to have more information as to the cause of this defect . . . . Have you found any advantage in using a stronger back rest, breast beam or sley, and have you found any difference between looms running with the crank over the top compared with looms running with the crank under the bottom? You will be aware that the English practice is to travel over the top and forward, but the American practice is to travel under the bottom and forward. This subject is bound up probably with the fact that there is more shrinkage near the selvage than in the center of the cloth."

Looking at the questions one at a time we answer that we do not believe there is any advantage in trying to reduce the bow by use of a stronger back rest. The bow in the cloth is caused by the fact that selvage ends take up faster than the ends in the body of the cloth causing it to bow away from the reed. That is, the selvages of the cloth are first reached by the reed as it beats up the pick of filling. The body, or center of the cloth, bowing away from the reed and being reached last as the reed moves towards the cloth in beating up the filling. It does not seem that a stronger back rest would lessen this tendency of the selvage ends to grow tighter since the ends coming over the back beam are all even, and parallel, to the breast beam, from one edge to the other.

A stronger breast beam would not help prevent bow. The breast beam is parallel to the whip roll and section beam, and to make it stronger would not alter the tendency of the cloth to take up faster since it would not alter the relation of the selvage ends to those in the body. A curved piece of wood is sometimes placed over the breast beam to draw the central portion of the ends coming over the whip roll tighter, and so make them more taut than the ends at the selvages which are not affected so much by the curvature of the wood. This curved piece of wood is tapered down to almost nothing at the selvages. This pulling of the center of the sheet of ends tight while the selvage ends are left comparatively slack, has a tendency to reduce the bow in the cloth.

It does not seem that it would be advantageous to use a stronger sley in trying to reduce the bow. If the weight of the goods had to be kept constant this would mean that the filling would have to be made lighter to balance for an increased number of warp ends. The increase in the number of warp ends combined with the lightening up on the filling would decrease the bow to some extent, but would not probably justify changing the relation of the warp to filling numbers.

It does not seem that the bow would be altered by changing the direction of travel of the crank. That is, the bow would not be affected for cloth made on looms running with the crank traveling over the top forward (English method) as against one running with the crank traveling under the bottom and forward (American method). I understand that the English method gives the shuttle more time in the shed, and has more of a downward beat on the fell of the cloth. I do not see how one method would affect the bow more than the other.

As the inquirer states, the subject is probably bound up with the fact that there is more shrinkage near the selvages than in the body of the cloth. We all know that the drag of the filling exerts a pull on the selvage ends each time the shuttle crosses from one box to the other. This draws the selvage ends towards the center of the cloth and tends to narrow the body of ends in front of the reed. The reed coming forward then forces these ends to spread to accommodate the width of the body of ends in the reed, which is greater than that of the cloth. When the reed moves back from the fell of the cloth the natural tendency of the filling is to contract where it was forced to spread by the forward movement of the reed. This contracting acts as a spring to pull the ends towards the center. The selvage ends take the brunt of this pull and are crowded closer together resulting in a higher sley at and near the selvages than that in the body of the cloth. This difference in sley causes a difference in contraction of the warp ends at the selvages. The result is that the selvages of the cloth tend to be tighter and this causes a bow in the cloth.

CONTRIBUTOR NO. 6255.

*This inquiry resulted from the discussion of bow in handkerchief cloth, by "Contributor No. 6255" on page 114 of the October 1933 issue of COTTON. A clipping of that article will be supplied upon request.—The Editor.

Drafts and Weights on Sliver and Ribbon Lap Machines.

An eastern carder gives his ideas on a subject that came up at a recent meeting in Gastonia . . .

EDITOR COTTON:

From time to time I have heard different men discuss sliver and ribbon lap as to weights—which should be heavier, the sliver or the ribbon lap—also the doublings and drafts to use on the sliver lap machine, and I am submitting this article on the sliver and ribbon lap, also doublings, draftings and the weight of the laps, to see if I cannot coax some of the fellows, especially the comber men, out of their shells.

It is very essential that we have a good finished lap to place at the back of the comber, one that is even and has been drafted enough but not too much. It must also have a good selvage and it must be a lap that will run off without licking up. There are different methods of producing a lap for the comber, which I shall try to explain briefly.

One method is to take the card sliver from the cards direct to the sliver lap machine of the right width. From this machine the lap is taken right to the comber. Now this method is entirely wrong, and I think most readers will agree with me, as there are not enough doublings to make an even lap and the draft would be too short to parallelize the fibers. A lap of this kind would run off very nicely, but due to the more or less tangled mass of fibers there would be a tremendous amount of long fiber going into the waste box. It would also be injurious to the half lap and top comb needles besides making a very uneven finished combed sliver.

Another method is to use a drawing frame after the card and then make a finished lap on a sliver lap machine of the proper width for the comber. In this way a much better lap can be produced due to the fact that the proper amount of doubling and drafting can be obtained. In this I try to keep my total draft on drawing frame and sliver lap machine between 8 and 9, doubling 4 at the back of the drawing and 20 to 24 at the sliver lap machine. This would be for a 12-inch lap, narrower laps in proportion; generally running about two slivers per each inch of the width of lap being made.

The method that is most extensively used, and which I believe is best to produce the most even lap, is the sliver lap machine and the ribbon lap machine. I have found the following drafts and doublings to be very satisfactory with this method.

Assuming that I am making a 550-grain lap for my comber, I would double 20 at the sliver lap machine, making a 475-grain lap at this point. Then I would double 4 at the ribbon machine, making a 550-grain finished lap for the comber. Assuming my card sliver to be 50 grains per yard:

$$\frac{50 \times 20}{475} = 2.1 \text{ draft at sliver lap machine}$$

$$\frac{475 \times 4}{550} = 3.6 \text{ draft at ribbon machine}$$

$2.1 \times 3.6 = 7.56$ total draft in sliver lap machine and ribbon lap machine.

These weights would be for about 1¼-inch staple. For longer staple it is advisable to run lighter according to the length staple being run.

I have found it a good policy to keep the sliver lap as light as possible, as this means less bulk for the drawing rolls on the ribbon machine to handle, therefore giving a more evenly finished lap, and it also keeps the draft down on that machine.

I know that some of the boys are going to come back at me when they read this article, because of the short drafts and for cutting down on the doublings on the ribbon machine. We all know that doubling and drafting help to make evenness. They also tend to make the cotton very soft and fluffy, and at this point that would cause a very bad running lap, one that would lick up a good deal and make a lot of waste which would have to be re-run, besides making very uneven comb sliver. I figure that it is better to sacrifice a little on the doublings

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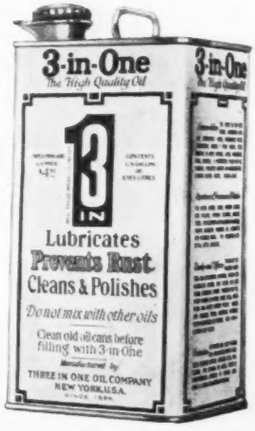

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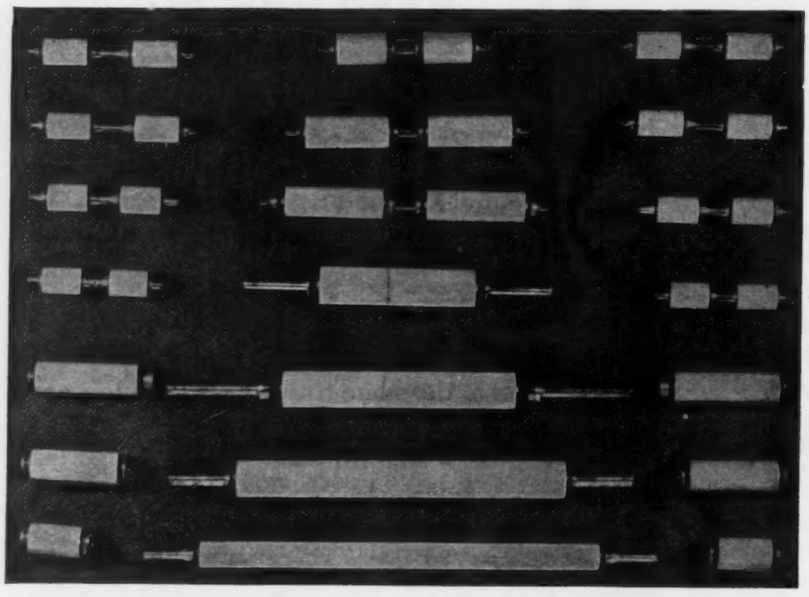

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and drafts and produce a lap that will run off smooth and free without making a lot of waste. In this way, I think the evenness that was lost through the sacrifice in doublings and drafting will be more than made up in the good running laps.

As stated, I suspect that some of the readers of this department will "crack down" on me for some of the opinions I have expressed. but I'm ready to back them up, so let's have the criticisms.

R. G. (R. I.)

Answers "Wash's" September Questions

EDITOR COTTON:

On page 69 of the September issue of COTTON I read the list of seventeen questions submitted by our friend "WASH", and I managed to stir my feeble brain in an attempt to dwell upon these questions and give answers with a few remarks to the best of my ability.

The first question asks about what harm can be done on a picker by increasing the draft without making other changes. Of course I am taking it for granted that all conditions pertaining to the proper accomplishment of the work required of the picker are in perfect order before the draft was increased. "WASH" of course does not give us any ground to play on in that matter. However, to my mind, everything is perfect with the picker and then the draft is increased, thereby slowing down the feed from the feed rolls to the beater, giving the beater a chance to give additional beats per inch, which will possibly mean injury to the fibers thus held for the extra beats. Then again with less stock passing on to the screens, the speed of the fan may be too high and cause trouble by whipping the stock against the screens, thus not permitting enough seed and trash to escape through the beater bars. On the other hand, if this fan speed is too slow it will tend to expel too much good fiber at the bars.

However, the foregoing would happen, to my mind, only when a very distinct change of draft was made and not at all for an ordinary change.

The next question asked in setting a beater, what part of the beater box should be considered so that the stock will not be taken around the second time? The only part which I can name is the plate set across the machine opposite to the feed rolls and just beneath the hinges of the beater box cover. This plate acts as a damper and if the fan speed is right for the stock in process there will not be any whipping around a second time as sufficient draft will pull the stock forward easily.

Next, "WASH" says, *"On a card we set the licker-in to the feed plate almost to touch. Does such a setting injure the stock, if so what about the action of the Kirschner beater on the finisher picker?"* If "WASH" sets "almost to touch", I would suggest that he use gauges as all good carders do. I would much rather our friend would state the settings to which the point is usually set by gauge—7/1000 or 10/1000 of an inch. In the question he asks does such a setting (close setting) injure the stock. Here I am at a loss to know what kind of stock he means, as to class, staple, etc. He seems to be using a class of cotton which leaves the reader guessing and I think it is usual for

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But the tide turned. The Federal Navy, for all practical purposes, successfully blockaded Southern ports. Cotton from India, from Brazil, Egypt and Siam began to trickle in growing quantities to French and English looms. And adroitly, Lincoln freed the slaves. The South was doomed by the raising of this moral question. Her armies of ragged soldiers fought on to the end, but the end was inevitable: on April 9, 1865, at Appomattox courthouse in Virginia, King Cotton was finally dethroned.

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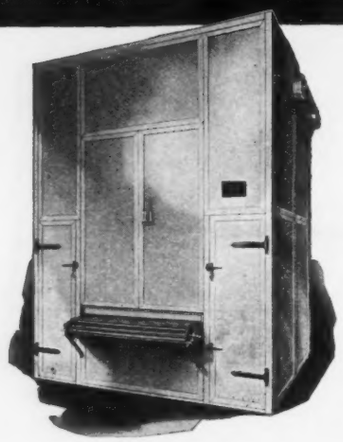

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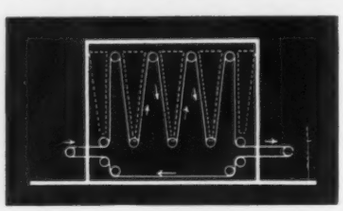

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different classes and staples to require different settings in all machines. Of course if "WASH" means to imply that with this "almost to touch" setting we feed 15/16-inch staple, then very little injury to the fiber is the result, but let us try 1¼-inch or over and then we will get plenty of damaged fiber. No sir, we cannot set the feed plates to lickers-in "almost to touch" and get away with anything good. It is one of those things that cannot be done. However, it seems to me that this question might have been more practical if it had been submitted to the reader thus: asking if too close a setting between the feed plate of a card and the licker-in would injure the fiber and if so what about the action of the Kirschner beater on the finisher picker. I fail to see any comparison, because it appears to me that there should not be any between the action of the Kirschner or carding beater and the licker-in of any card, which is covered with the regular licker-in teeth, for the simple reason that the surface constructions of these are entirely different and they both function in conjunction with stock under very different conditions.

The stock as presented to the Kirschner beater is surely in a more matted condition than the stock which passes under the feed roll of a card and will receive less rough treatment than does the stock which comes in contact with the teeth of the beater, though there are less teeth per square inch of surface on the beater than on the licker-in, but the "tearing" effect is greater, hence, the quality of the stock is injured considerably, because, instead of a tuft of cotton coming through the feed rolls receiving a sharp, clean blow or beat, as with the blade beater, it is, as it were, raked away from the rolls, causing neps which result from broken fibers. The latter condition prevails during any kind of setting of Kirschner beaters, but with a licker-in in good condition all that can be avoided by careful setting for the particular stock in process. As for comparing the action of licker-in teeth and the pins of a Kirschner beater—well, it doesn't exist.

On the fourth query, "WASH" asked: *"Which is the best to extract the foreign matter from the field of action between the licker-in screen and licker-in: Properly set mote knives with air admitted at the back of the card or poorly set mote knives with the back of the card airtight?"* Well, what is the use of having mote knives at all if they are not set right? We can admit all the air we want to at the rear of the card, but it will not affect the function of the mote knives. Properly set mote knives are the most important things. Keep the card as air tight as possible, certainly, but placing that first in importance before mote knives would be absolutely out of all reason, because we may as well have a bad licker-in, as well as being badly set and trust to the motes, etc., falling out. The mote knives are most valuable in carding when set properly with the toe of each knife set to the licker-in at the proper angle, which I need not describe here as this very point has been thoroughly described by two or three of our friends in previous issues of COTTON.

Question No. 5: *"Do you prefer a heavy lap with slow feed or a light lap with faster feed? Why?"* Here "WASH" reverts back to an old discussion. My answer in the first instance is that it all depends upon

the conditions we are working under and the stock being used. However, not being a great advocate of long drafting on cards, I prefer the light lap with a faster speed if conditions permit, because I believe in quick carding, if the quality of the goods permit. Cotton fiber which is allowed to dwell too long during the carding process will result in weaker yarn, but the aim of all carders should be to acquire the clean perfect lap for the card, so that he will be able to eliminate over-carding.

Question No. 6: *"If you were going to reduce your carding, how would you do it? Would you reduce the speed of the doffer, the weight of the sliver, or the weight of the lap?"* I would lighten the lap. If I slowed down the doffer or reduced the weight of the sliver I would naturally go back on my short-drafting ideas, and a light uniform lap is best for good carding results, but as I stated before, that is the most important part—a perfect lap or sheet of cotton. Here I may say that the bad work made in the opening or picker department is the cause of too many troubles.

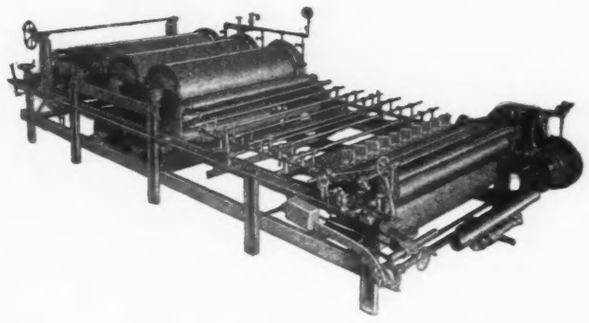
Question No. 7: *"When are humidifiers most helpful on cards?"* That depends upon where the cards are situated. In some small mills they use humidifiers always. That is a mistake, I know, but it is probably due to neglect or carelessness. Still, I do know that humidifiers are most helpful during cold frosty mornings and nights, but the automatic type of humidifier will take care of any carding department. We are at present running over 200 cards two shifts and very seldom have the humidifiers operating near the cards, and no trouble exists. Some of these cards are running Pima cotton and doffing every six hours, but the point to consider is that in this carding department an even temperature exists practically always due to the location in the mill.

Question No. 8: *"Which is the best draft? Why?"*

There is seldom very much difference in draft or counts between two and sometimes three processes of drawing, but some men prefer to favor the first or breaker drawing by giving it slightly less draft to compensate somewhat for more frequent stoppages at this process due to variations and inequalities in the cans of sliver from the cards. This idea of course suits the less parallel order of the card sliver. "WASH" probably understands that we have set rules for drafting on draw frames but more often than not, these rules are worthless. The only way, as I realize, is to set down suitable back and middle roll drafts and then put in, between the first and second rolls, whatever draft is required to get the required hank sliver, without regard of any set rule. We may, for example, decide to keep the back draft at 1.25 and the middle draft at 1.75 and let the remainder, say 2.75, be front draft for six ends up.

The next question, No. 9, is: *"Why is a draft of less than 1.00 required between the front drawing and calender rolls on drawing frames?"*

This gives me the idea that "WASH" does not know that this draft is more than 1.00 on any draw frame. He should know that this draft is a tension draft and if it is less than 1.00 there will be very little tension. Here is an illustration to prove my point. A 28-tooth gear on a 1⅜-inch front roll drives a 45-tooth compensating gear compounded with a 33-tooth tension



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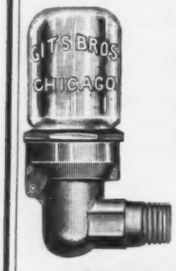

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gear which drives a 24-tooth gear on a 2-inch calender roll. Hence:

$$\frac{28}{45} \times \frac{33}{24} \times \frac{8}{11} \times \frac{2}{1} = \frac{56}{45}$$

which gives a little over 1.2 of a draft on a frame using leather rolls. The same results on metallic rolls with a change of the tension gear to 38 teeth. Here is another example from an old type frame. A 37 gear on 1½-inch front roll drives a 48 on a 2-inch calender:

$$\frac{2 \times 2 \times 37}{3 \times 48} = \frac{37}{36} = 1.027$$

which is the draft between the front roll and calender roll. If "WASH" is running with a draft of less than 1.00 between these points he must have very slack webs. Our webs are just right and we are running all combed stock producing up to 16.00-hank roving.

Question No. 10: *"Are metallic rolls better than cork or leather on drawing frames?"* I prefer leather rolls for quality, but metallic rolls generally and especially in these days where economy is the chief item. Metallic rolls, when cared for properly, will do their work, but neglect in cleaning and oiling will result in loads of trouble, and neglect in this way will cause the defects mentioned in Question No. 11:

"Name the causes of cut webs on draw frames." Dirty flutes on metallic rolls, worn roll collars, badly meshed roll gears—both draft and calender gears—and also back lash existing in any of the gears, through worn keys or key-ways, will cause cut webs, apart from the most important point of cleaning and oiling. A strip of raw hide which holds the roll clearer and weight is liable to catch at times under a roll end and give trouble.

Question No. 12: *"What is the proper draft on a slubber? Why?"* A somewhat vague question to ask, because I think the general idea is not to draft too much on the slubber and keep the turns per inch down as low as possible to enable longer drafting in the following processes. Between 4.00 and 5.00 is sufficient draft to have on a slubber. Of course we must bear in mind that "WASH" does not mention any particular lay-out when desiring an answer to this question.

Question No. 13: *"Which is the best compound for differential motion, the Houldsworth or the new so-called differential? In answering this question please consider the additional impetus caused from the cone."* I can only say that the Houldsworth is O. K. for me as I have not yet had any experience with any of the new differentials which "WASH" mentions, unless he means the disc type.

Question No. 14: *"We have the bobbin-lead system, and so, if the bobbin leads, how can the spindle or flyer be an aid to the cone belt?"* Let me inform "WASH"—no doubt he already knows—that the spindle and the flyer do not aid the cone belt because the latter drives the bobbins to perform winding on and does not receive additional aid from any other part.

Question No. 15: *"Why do you find a brake to stop the bottom cone from revolving in the opposite direction at doffing time, or when the bottom cone is raised? Why does the bottom cone revolve in the opposite direction when raised on all makes of fly frames in the bobbin-lead system?"* Well, I think most of us

fellows can guess that one if we stir ourselves. Here is my humble opinion and I think I am right: The brake is applied to check the bottom cone and also the whole train of gearing to the sun gear. If the sun gear be disconnected from the other gearing it will revolve in the opposite direction, while the bobbins will be stopped. The second part of the question may give the idea that "WASH" means to imply that the bottom cone revolves in the opposite direction when the frame is running, but we will take it that he means when the frame is stopped for doffing, because on all bobbin-lead frames the bottom cone revolves the same way as the driving shaft when the frame is running. However, it is easy to see that as soon as the driving force is eliminated, by raising the bottom cone and thereby slackening the belt, the large sleeve or sun gear will be free to revolve around the fixed gear on the driving shaft and naturally the whole train to the bottom gear revolves to some extent. Of course all this proves that during the operation of the frame there is an extra load thrown onto the function of the cone belt. This description is what really happens when a cone belt breaks.

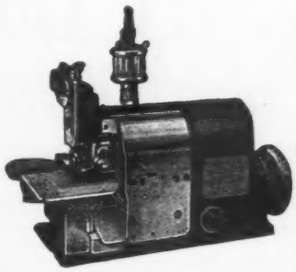
Question No. 16: *"What causes tight spindles on fly frames?"* Neglect, and that embraces all the faults connected with this running defect. Dirt is the more frequent cause and this of course accumulates in the bolster more when oil is used too freely. I know some mills will not permit oiling of bolsters, but give them a periodical punching out, at the same time overhauling the alignment of the frame and spindles which correct a more serious cause, namely, spindle and bobbin rails getting "out of line" and, by the way, it takes very little to cause trouble, but on most frames the overhauling and adjustment of bolsters and spindle steps is a simple matter.

Question No. 17, and the last: *"What is the best spindle speed on the slubber, intermediate, fine and jack frames? Why?"*

This is another question where class of stock, size of roving and general working conditions should be taken into account. However, I will give my list of what I term safe speeds for the frames mentioned, namely: slubbers, 500 to 600 r.p.m.; intermediates, 700 to 800 r.p.m.; fine frames, 1,000 to 1100 r.p.m.; and jack frames, 1200 to 1300 r.p.m. These being, in my opinion, safe speeds, as we all know the high spindle speeds, though very prevalent in these days, sometimes create more breakage and lost time in stoppages as well as bad work caused through same, than would be the case if frames were run somewhat slower.

Having concluded this questionnaire, I trust that my feeble attempt has met the approval of our friend "WASH", and now may I ask him one question as I am sure he or any other reader would welcome it and probably give me the answer. Here it is: The end diameters of the cone drums on a roving frame are respectively 7 inches and 3 inches, and the bobbin, when empty, is 1-inch, and when full, 4-inch diameter. What diameter should the belt be on when the bobbin is, respectively, 2-inch and 3-inch? Show how you would arrive at the results. I have a method of solving the query, but I would like to learn any other as I think some of our friends must have at least one on hand.

E. D. (R. I.)



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10. Leathers, Textile—Booklet No. 101, 48 pages, illustrated. Showing "Bondaron" Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. Whitinsville Rings—16 page illustrated booklet, describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

15. The Powers System of Thermostatic Control—"Slasher room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

21. Warp Sizing and Composition of Cotton—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Wooley Co., 748 Rice St., Atlanta, Ga.

25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

28. Akron Belting—Practical Rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full fashioned knitting.)

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various terms used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan Inc., Passaic, N. J.

63. S-W Paint Standardization Plan—valuable booklet telling how protective coatings can effect economies in plant operation and maintenance, describing how each surface is finished to best meet its specific needs, giving ideal lighting and sanitary conditions and economies in increased production. Sherwin-Williams Co., 601 Canal Rd., Cleveland, Ohio.

64. Efficiency and Performance of SKF Roller Bearing Spindles—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

65. Why Cooper Hewitt Light is Better Than Daylight—A 16 page booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Elec. Vapor Lamp Co., Hoboken, N. J.

66. Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176—describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

69. Monel Metal Equipment for the Textile Industry—A 50-page buyer's guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in textile fabrics. The Merrow Machine Co., Hartford. Conn.

73. New Reeves Catalog No. 99—a treatise on efficiency speed control—including valuable information of special importance to textile industry men and production executives outlining advanced methods of speed regulation. Reeves Pulley Company, Columbus, Indiana.

75. The Facts About Armstrong's Seamless Cork Cots—A helpful book containing plain facts, cost studies based on actual mill records, expert analysis, complete details on the advantages of Armstrong's Seamless Cork Cots. Armstrong Cork & Insulation Co., 923 Arch Street, Lancaster, Pa.

78. Booklet L 1289 A—Loom Motors and Control—giving details of the low installation, operating and maintenance cost of Westinghouse Loom Motors. Westinghouse Electric & Manufacturing Company, Room 2 N, East Pittsburgh, Pa.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept., C-11, Dayton, Ohio.

90. Atwood Booklet—Describing Atwood Winders, twisters, wire swifts, and various types of feed rolls—useful to throwsters interested in learning the principal features of various Atwood machines. Atwood Machine Co., Stonington, Conn.

92. Silicates of Soda—A review of the properties of silicates of soda and their various uses. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

95. Onyx Processing and Finishing Compound Catalog—A thirty-two page booklet listing and describing entire line of processing and finishing compounds, covering every process on all types of fabric. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

97. Suggestions For The Modern Silk and Rayon Throwster—describing the various uses for Laurel Brand Products and giving valuable suggestions in silk-soaking, degumming, dyeing, sizing and finishing. Laurel Soap Mfg. Co., Inc., 2600 East Tioga St., Philadelphia, Pa.

99. Bulletin 177, Temperature Controllers. 48 page booklet describing and illustrating the various types of controllers, charts, valves, etc., and their industrial uses. Foxboro Co., Foxboro, Mass.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk—Charles B. Johnson, Paterson, N. J.

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114. Denman Parts for All Makes of Looms—showing drawings and dimensions of Denman pickers, hold-ups, bumpers, and bunters made of fabric and vulcanized rubber. Denman Tire & Rubber Co., Warren, Ohio.

115. How to Cut Cloth Room Costs with Automatic Picking Machines and Improved Inspecting Machines—Hermas Machine Company, Walburton Ave., Hawthorne, N. J.

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135. The Pick Method of Weaver Wage Payment—A manual of practical information describing methods to be followed in using Pick Counters; suggested forms, and tables included. Durant Manufacturing Co., 1932 No. Buffum St., Milwaukee, Wis.

136. Launder-Ometer—16 page booklet describing the Launder-Ometer which will tell you quickly whether laundering will cause your products to fade, shrink or deteriorate and just how many trips to the laundry they will stand. Atlas Electric Devices Co., 387 Superior St., Chicago, Ill.

137. Paramount Dual Heat Hosiery Finishing Machines—12 page booklet describing the Paramount Dual Heat Hosiery Finishing Machine which gives perfectly balanced heat and reduces hosiery drying to a scientific certainty. Paramount Textile Machinery Co., 538 S. Wells St., Chicago, Ill.

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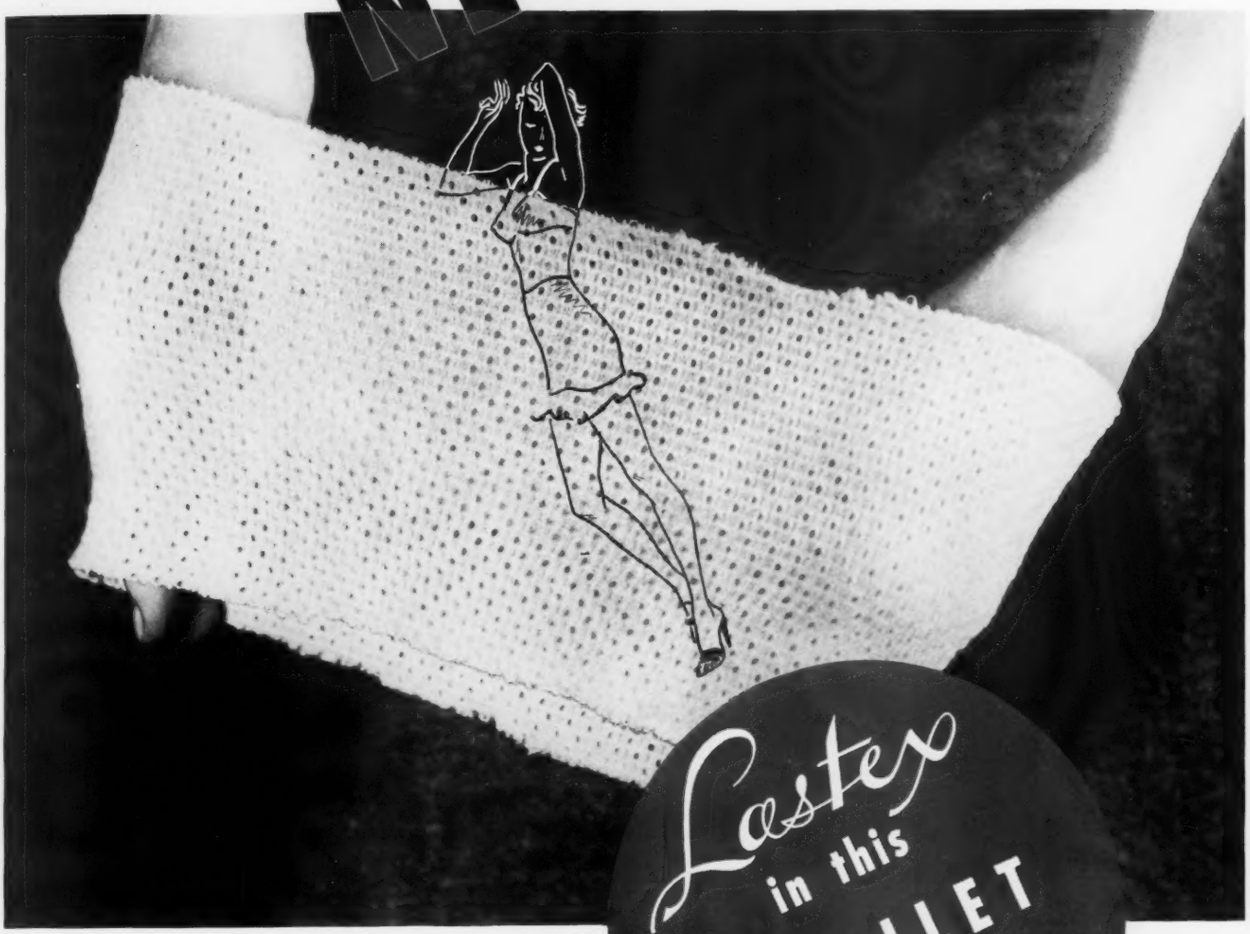

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The cost of materials is given as $1.47 in 1932 comparing with $1.92 under NRA; direct labor, $1.70 in 1932 comparing with $2.84 under NRA; overhead, 47 cents in 1932 and 72 cents under NRA. The total of these items sums up in the cost per dozen, as stated. These figures apply to the products of the 18-section low speed machine. The cost of material is, of course, the same for both types of machines, but for the 24-section high speed there is shown a lower cost for labor and overhead, labor cost being figured $1.59 and overhead 45 cents for 1932, and $2.76 for labor and 64 cents for overhead under NRA.

Thrown silk cost per dozen is given as $1.32 in 1932, against $1.65 under NRA, and the cost of cotton 15 cents in 1932, comparing with 27 cents under NRA. The increase in the total of these two items under NRA is approximately 30.6 per cent.

The manufacturer providing these estimates states that in figuring overhead there was included full depreciation for the high production equipment, the 18-section equipment having been written off and, therefore, not subject to a depreciation charge. The manufacturer in question states that he made his comparison on thirty-two 18-section low speed 42-gauge leggers and fifteen 20-section low speed 42-gauge footers. He uses the same ratio of set-up as to the high speed production, and in each case assumed that the leggers were operated two 56-hour shifts and the footers one 54-hour shift. On the NRA basis, it is assumed that leggers are operated two 40-hour shifts and the footers one 40-hour shift. The manufacturer states that in arriving at an estimate of wage schedule under the old and the new basis, he took an average for the industry.

On the low speed machine, he states there is an increase of 67 per cent in direct labor cost and on the high speed equipment a difference of 73 per cent. both under NRA, as compared with 1932. This indicates, he states, that the high production equipment affords for the manufacturer a wider margin of profit than does the low speed 18-section machinery.

Knitting Arts Exhibition, Philadelphia, April 23 to 27

ONE of the largest Knitting Arts Exhibitions in the history of the trade is promised by Albert C. Rau, manager of this event, in announcing the 30th annual Exhibition to be held at the Commercial Museum in Philadelphia April 23 to 27, inclusive. This exhibition is under the joint auspices of the National Association of Hosiery Manufacturers and the Underwear Institute. Nothing quite like it is seen elsewhere. In point of size, completeness and importance to the knitting trade, it stands alone.

It is a true exposition in its scope and many of the exhibits are in operation and when the Exhibition is set in motion, it represents a gigantic factory, perhaps the most fascinating shop in the world. So diversified are the various exhibits that executives, buyers and those generally interested in the knitting trade can view the entire process of the manufacture of hosiery, underwear, sportswear, etc. from the spinning of the raw silk or wool to the dyeing, bleaching, drying, boxing and tying.

This Exhibition is considered indispensible to the knitting trade because it presents to them a complete picture of the industry—timed and clocked to the moment. It affords executives and buyers a wealth of ideas to take back to the factory in the way of improvements, short cuts and methods of increasing production and cutting overhead. Everything that is new and is of proved value is spread out before them with experts on hand to explain the improvements effected in the finished product and the money to be saved through its use.

Exhibitors at this Exhibition have learned through actual experience the value of an exhibit at this great show and eagerly await its coming each year. It affords them an opportunity to gather together hundreds of real live prospects and personally renew acquaintance with old customers and meet new ones. Year after year leading manufacturers exhibit at this Exhibition as it assists materially in building their business solidly for the future and keeps their names familiar to the knitting and underwear trade. They realize it would take anywhere from eight months to a year for their representatives to interview the relative same number of interested prospects who visit the Exhibition if they called on them at their own plants, thus the Exhibition cuts to a minimum time and expense of marketing their product.

This Exhibition draws an attendance from every knitting center in America and Europe. Every year there are visitors from England, Germany, South America and frequently from such far-away places as China and Japan.

This year the Raw Silk Committee of the Underwear Institute will have a very elaborate exhibit at the show. This exhibit will have machinery and equipment in operation testing silks in various ways, and in addition, will have on display equipment for grading silk hosiery.

The National Association of Hosiery Manufacturers will hold their annual meeting and convention during the Exhibition. They will elect new officers and have round table discussions of the new and interesting phases of the industry. The present officers are: President, William Meyer, Apex Hosiery Company of Philadelphia, Pa.; first vice-president, Grover C. Good, Globe Knitting Works, Grand Rapids, Michigan; second vice-president, R. C. Aycock, Aycock Hosiery Mills, South Pittsburgh, Tennessee; treasurer, Ernest Blood, John Blood & Co., Inc., Philadelphia, Pa.; and managing director, Earl Constantine, 468 Fourth Avenue, New York, N. Y.

His deduction is, therefore, that in view of the indicated necessity for working toward lower cost and meeting such conditions as are liable to arise under enforced changes in hours, etc., the modern equipment is, as one necessarily assumes, the better suited for meeting competition under various marketing conditions.

While the cost of operating the high production machine is greater than that of the low speed equipment, the cost of the production of the high speed machine is considerably less per unit for the reason that, according to the manufacturer making the study and comparison, it has a capacity of 17 dozen pairs of stockings in 10 hours, whereas the low speed machine of 18 sections was producing, prior to NRA becoming effective, but 10 dozen pairs in a 10-hour day.

As explained by the manufacturer, "We did not at that time have the high production equipment, but had we been operating it we would have run it the same number of hours as we ran the older models, and gotten the greater production per hour."

As there are two distinctive periods in each year when a greater production is required to keep in step with demand, some few manufacturers are said to have installed sufficient additional equipment for taking care of the spring and the fall peak loads. It is pointed out, however, that this added machinery may be idle for eight or nine months in each year if it served the purpose only of increasing output for the seasonally busy periods. In this event, there is seen an increase in overhead cost, as interest on the investment on idle machinery necessarily must be taken into account.

It is the opinion of some leading observers that very few manufacturers have installed additional equipment for the express purpose of operating it in only the two busy periods of each year, the thought being that most of the new installation is for replacement and that the strictly modern equipment serves to answer the question as to how production may be best adapted to the busy and dull periods, while averting accumulation of stock.

It is to be borne in mind that while women's silk hosiery is, to a large extent, a seasonal item, in relation to demand, it is an item in which there may be frequent style changes in the future as well as in the past, and that in the installation of equipment the wise manufacturer is not overlooking this fact.

To discuss at the knitting show—

Advance news of the Knitting Arts Exhibition, which will open in the Commercial Museum Building in Philadelphia on April 23, indicated that the machinery exhibits will be more comprehensive than in recent years and will be interesting especially as an index to new installations for the safer conduct of industry in current conditions, affected in great extent by sudden and frequent changes.

It seems the first thought in the minds of manufacturers, trying to plan their near future production campaigns, is plant flexibility. But for the element of style this would be a more simple matter. Even at that an exchange of opinions, opportunity for which will be afforded during the Exhibition and conferences with builders of machines, doubtless will prove very helpful.

The regulation of output, notably in the three major knitting divisions, is to be attempted from various angles, it appears, one proposition being to start with inventories as an index of expansion or curtailment of hosiery production, as the case may be. Necessarily, the requirements of the user of machines to adapt plans to sudden and frequent changes directed mostly by NRA authority will, in large measure, dictate operating conditions among manufacturers of machines, in the same manner as the user of the machines is guided in his plans by jobber and retailer demands for his products. All of which promises to be a subject for very wide discussion during the days of the Knitting Arts Exhibition, for which it is stated more space has been sold and a greater and more comprehensive display of machinery is being provided than for any exhibition in a number of years.

A viewpoint on "used machinery"—

While flexibility and modernization of plant are receiving thoughtful consideration among manufacturers, it is evident from the sales of very large numbers of used hosiery equipment that an element among manufacturers believes it will be able to meet future conditions with equipment that ordinarily might be assumed to be obsolete or, in any event, workable relics of antiquity. Large numbers of used machines, seamless machines, for the hosiery, the underwear, and the knitted outerwear trades, have changed hands in the past three months, and there is an unfilled demand, even at very high prices.

Installation of used equipment, particularly that which does not embrace recent improvements, is out of line with the thought of a recognized practical mechanic and manufacturer who says: "Assuming that the intelligent operation of business in the future requires some control of the total production facilities, then, on any limited schedule of operations of machines and with a definite minimum wage making for better social conditions, the only mills that can survive and can provide a profit are those using the more efficient methods as provided by modern equipment."

Going further, the person referred to states that in the last six months purchases of machinery have been of two distinctive types. On this subject he says, "Because of increased costs and because manufacturers visualize still further increases in costs, it is only logical to expect the manufacturers of seamless hosiery to improve their position, because this type of manufacture is known to be more advantageous for lower costs and greater volume."

It is pointed out that some manufacturers have installed machinery with a view to taking care of the changes in the trend and the demand of the volume purchasing power of the country. Others, it is maintained, "have been farsighted enough" to realize that, with increasing labor costs, old and inadequate machinery cannot be expected to run on a

competitive basis. It is asserted that in the seamless hosiery industry there is evidence of "undoubtedly greater progress in the refinements and in the flexibility of these machines than in any of the other lines."

It is suggested by some interests discussing the matter of installations for meeting near future conditions, that many of the comparatively recent purchases of used machinery were inspired by an intention to economize because of a shortage of funds for building up plants to desired capacities. Students of the codes and their effect on the markets say that it was this interpretation of the term "economy" that caused some in the trade to expand their working time beyond code limitations. It is suggested in this connection that if manufacturers who reason in this way were permitted to operate three shifts, then the entire industry would be entitled to the same privilege and the consequence would be, as indicated by statistics, an enormous production and loss and suffering in consequence.

"We have seen how quickly styles change in so many lines of textile manufactures, particularly in hosiery," observes a manufacturer, "and I am inclined to believe that because of these changes, rather than have, say, six different types of machines and permitting one or two types to remain idle when the style trend demands results from the four others, the most practical investment will, of course, be in the flexible machine which can be operated at all times merely by adaptation to the vogue."

Starting with this premise, it would appear logical that a manufacturer purchasing equipment should do so on the principle that he is likely to operate it for a number of years to come and that, therefore, the chief consideration should be of flexibility, durability and speed of operation.

Underwear mills denied amendment to code providing for machinery installation limitation

Under the existing code for the hosiery industry, manufacturers are faced with more perplexing conditions than prior to their code becoming effective. Under a recent ruling by the National Recovery Administration, rejecting an amendment to the underwear code, it would appear that a broader demand for knitted underwear machinery will be felt than if the amended Code, which was submitted by the Underwear Institute, had been approved. That amendment, as is generally known in the trade, provided for registration of new machinery installed in the industry. This, it was held by the code authority, would have tended to a quasi-monopoly, delay the recovery of the equipment industries, and tend to hinder invention. This decision is to be regarded as a most important one from the standpoint of both the machinery industry and the industry which uses the machines, and it is believed to have established a precedent in other branches of the knit goods industry.

The language of Mark Harned, assistant deputy administrator, textile division, reads like a document calculated to go down in the history of regulation in the output of textiles. Mr. Harned referred to the provision in virtually the following language:

"It would tend to give to those who already have sufficient machinery to supply their demand a quasi-monopolistic advantage, and a certain immunity from competition. Certain mills would have been unable to fill their orders under recent conditions, had the proposed limitations been effective. It would prevent certain competitors from filling legitimate demands of their customers."

"It would delay the recovery of equipment industries by restricting purchases of new machinery and retard reemployment in those industries."

"It would tend to prevent the development and proper utilization of new inventions and improved processes."

The knitted outerwear industry appears to offer a wide field for invention for better adapting production to demand under existing code hours. There are, in this industry especially, two peak load seasons, one of which embraces March and April in the bathing suit industry and the other running into the fall months for sweaters. Under the existing code, manufacturers are allowed eight extra hours per week for eight weeks, this time to be distributed during the ordinarily busy period, the arrangement being not satisfactory to a great mass of the manufacturers.

Changes in Gair Organization

Robert Gair Company, Inc., 155 East 44th St., New York City, manufacturers of paperboard and paperboard products, recently announced through E. Victor Donaldson, president, that the six plants formerly operating as divisions had been incorporated as wholly owned subsidiaries, effective March 1. The Piedmont division is now Gair Cartons, Inc.; Thames River division is now Gair Thames Containers, Inc.; Connecticut Corrugated Division (Shelton) is now Gair Shelton Containers, Inc.; Warner and Childs Division (Medford) is now Gair Boston Containers, Inc.: Haverhill Division is now Haverhill Boxboard, Inc.; and Tonawanda Division is now Tonawanda Boxboards, Inc.

* * *

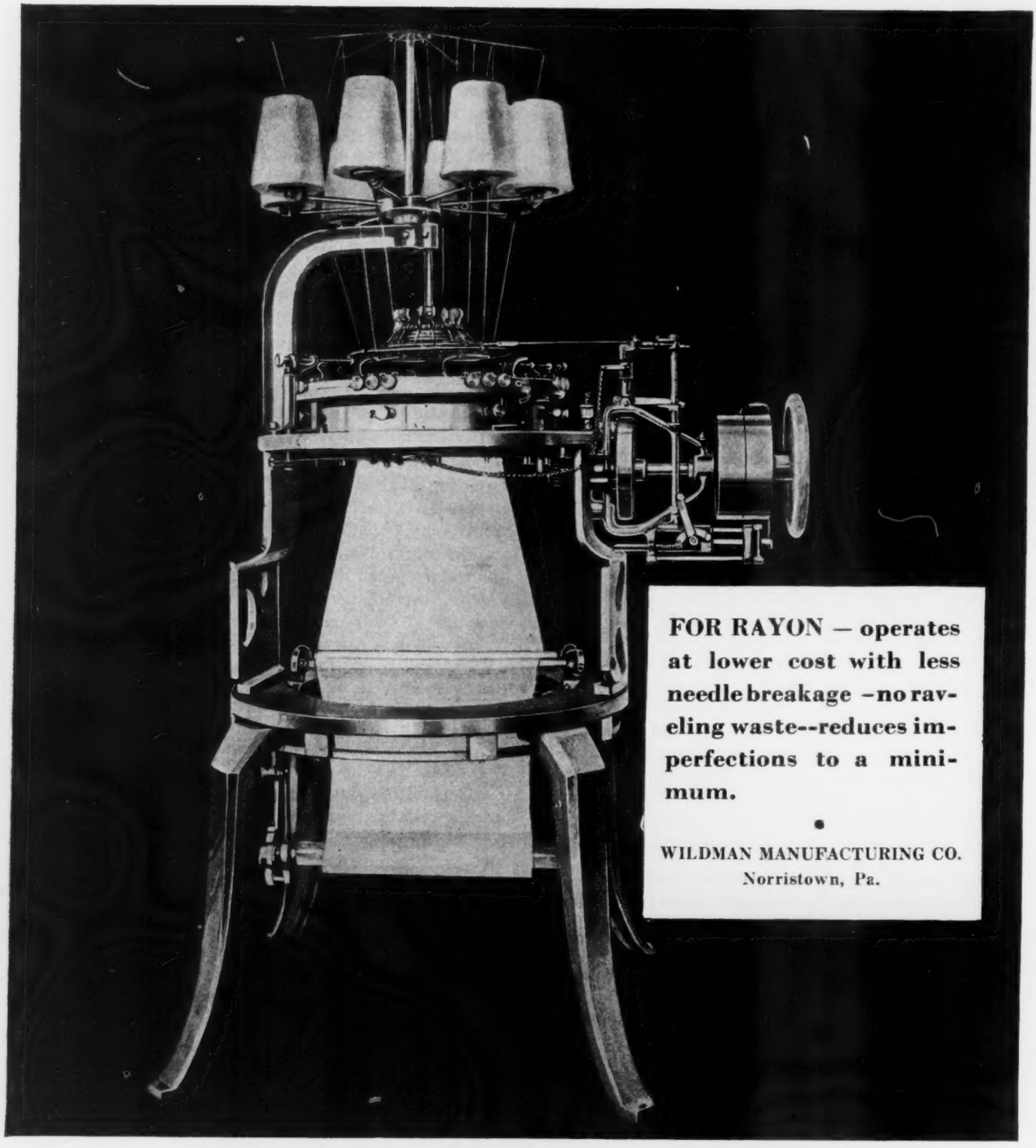
Clemson Seniors Visit

The members of the senior class in the textile chemistry and dyeing of the Clemson textile school recently visited the Southern Bleachery and Piedmont Print Works, where they observed the printing of textiles as practiced on a large scale. Dr. Eugene R. Manning of the Clemson textile school has recently been appointed as a member of the Committee on Mercerization of the American Association of Textile Colorists and Chemists, and also a member of the Committee on Sulphonated Oils of the American Oil Chemists Society.

* * *

Ball Bearing Remote Control for Liquid Level

The Swartwout Company, 18511 Euclid Ave., Cleveland, Ohio, has announced a new ball bearing remote control for liquid level in tanks, condensers, receivers, and other vessels. The company points out that the float chamber is equipped with full ball bearing construction of stainless steel balls and races to eliminate friction caused by liquid under pressure. It is designed to operate valves at any distance up to 300 ft. and at pressures up to 450 lb.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If you are not going to the Exhibition write for descriptive literature.

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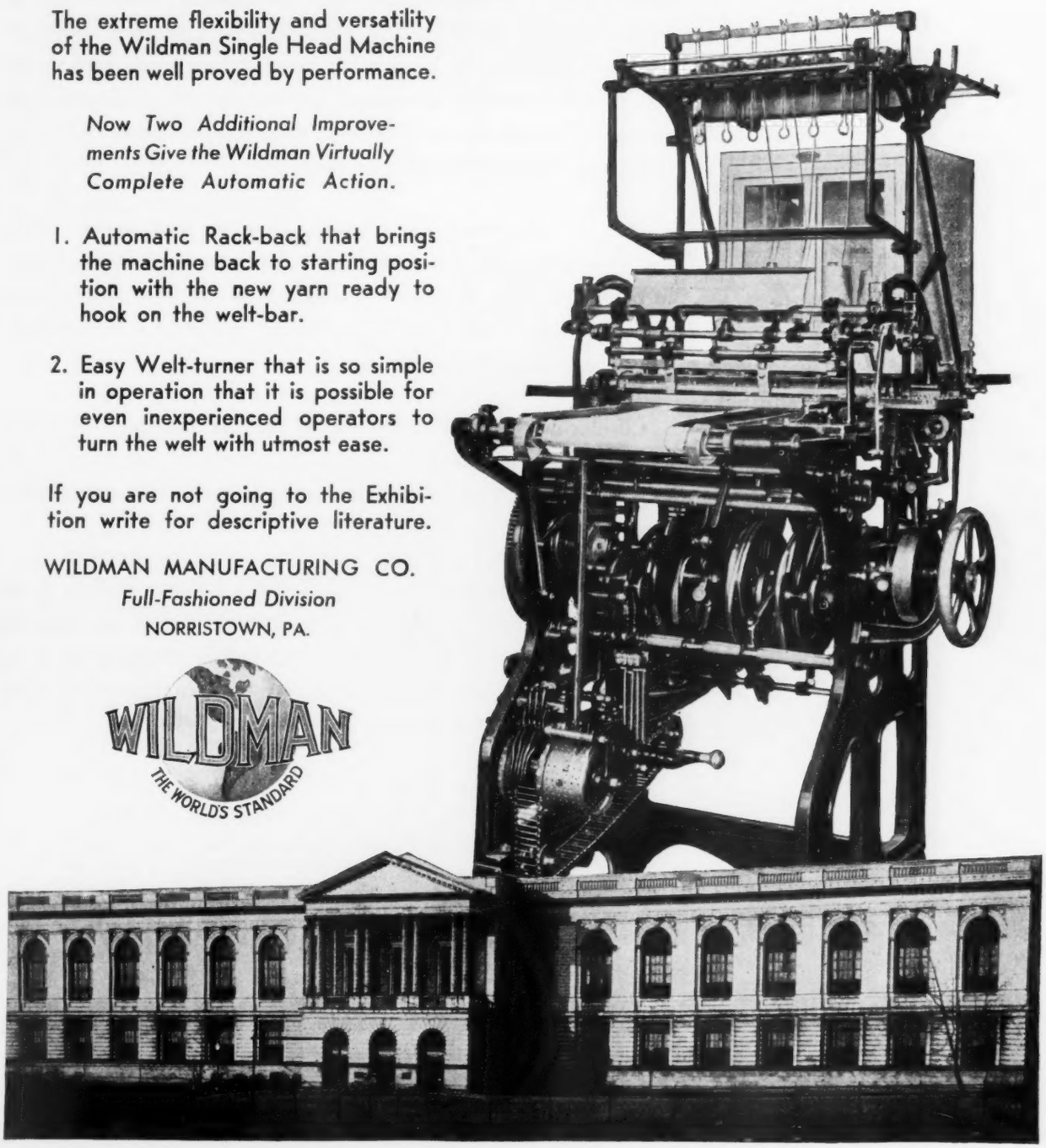

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IMPROVED styling ability, increased machine efficiency and increased production are Hemphill Company's recent contribution to an industry attempting to adiust itself to present day problems. The new Banner Wrap Stripe Machine with 19 independent steps, and short move main ratchet, increases pattern scope, gives quicker pattern changes, shows increased pattern efficiency, and fully maintains former production records.

Banner automatic Transferring devices with new sleeve cylinder give new time savings. Operator no longer needs to turn machine by hand, introduce yarn to needles, nor insert hand in cylinder. A special safety lock makes this new equipment fool-proof.

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Improvements in Equipment and Methods of Boarding Hosiery

By B. D. Gaddy
Supt., Golden Belt Mfg. Company

A SOUTHERN mill superintendent here discusses the operation of the boarding department, its development, and gives some practical suggestions on the operation itself . . . . . .

IN all lines of manufacturing there are usually some departments where working conditions are less attractive than in others. In the old days this was generally true of the boarding department in the hosiery mill. The boarding room, as a necessary evil, was placed in an out-of-the-way corner or basement where the hot air and lint would give the least trouble. This was in the days of the old dry box system and wooden forms. These dry boxes were equipped with radiators and fan to dry the hosiery. There were a series of drawers fitted with racks and wood pins to separate the boards and hold them on edges so the hot air could pass through.

When a boarder opened a drawer to exchange boards he was greeted with a hot blast of air in his face. The wood forms were made of hard wood highly polished and waxed.

The excessive heat to which these forms were subjected made them very brittle and easily nicked, which made them unsuitable for sheer high grade hosiery.

The first real progressive departure from this system was the cast aluminum hollow forms erected on tables and heated by steam. These tables were made in single and double section, the single section carrying 12 forms on one side while the double section carried 12 forms on either side.

These tables were usually installed with a single or half table at each end of the group in order to have an alley with 12 boards to each side. A boarder could use 12 forms to himself in the alley with another boarder, or the two boarders could work together on the 24 forms in the alley. This system eliminated the dry boxes and the wooden forms with all their objectionable features and made it possible to build the boarding room light and airy and greatly improve the working conditions.

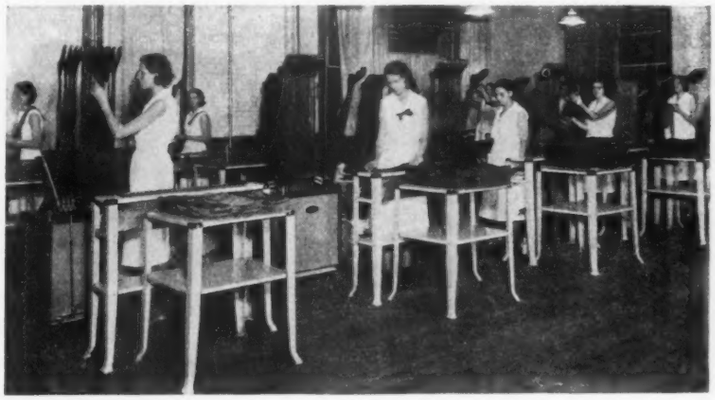
It was found to be very difficult to make aluminum castings without sand holes, small blisters and rough spots, which made them impractical for sheer silk chiffon hosiery. For this reason the form manufacturers turned to stainless steel for a material best suited for metal forms.

The hosiery manufacturers also discovered that the steam heated form was too hot for sheer silk hosiery. Before the damp hose could be placed in correct position on the form parts of the stocking would dry at the edges and when these edges were moved to the required position there would be board marks in the stocking. It was also found that the excessive heat of the steam heated form had a crisping effect on the fine silk similar to the curling iron on the hair, which caused the fabric to have a glazed or shiny appearance and also caused the fabric to contract when it absorbed the natural moisture from the air.

This defect in steam heat led to the adoption of hot water for heating the forms. The water is heated to any given required temperature and maintained at this temperature automatically by a steam regulator. The hot water is circulated through the forms by a water pump.

Since it was found that cooler boards were conducive to better workmanship on the part of the operative and produced a better and more permanent finish on the fabric, it is practical to give one operative 24 forms and run the temperature as low as complete drying will permit.

A hot water unit usually consists of 6 to 10 double tables of forms to one pump, and where it is possible, it is good practice to confine the chiffon weight goods to a hot water unit running the lowest temperature and the service weights to a unit running



Photos, courtesy Paramount Textile Machinery Co.

Showing installation of the latest type of hosiery boarding equipment; the "Dual-Heat"; note compact arrangement

A complete line of braiding machines designed and built for efficient production of:

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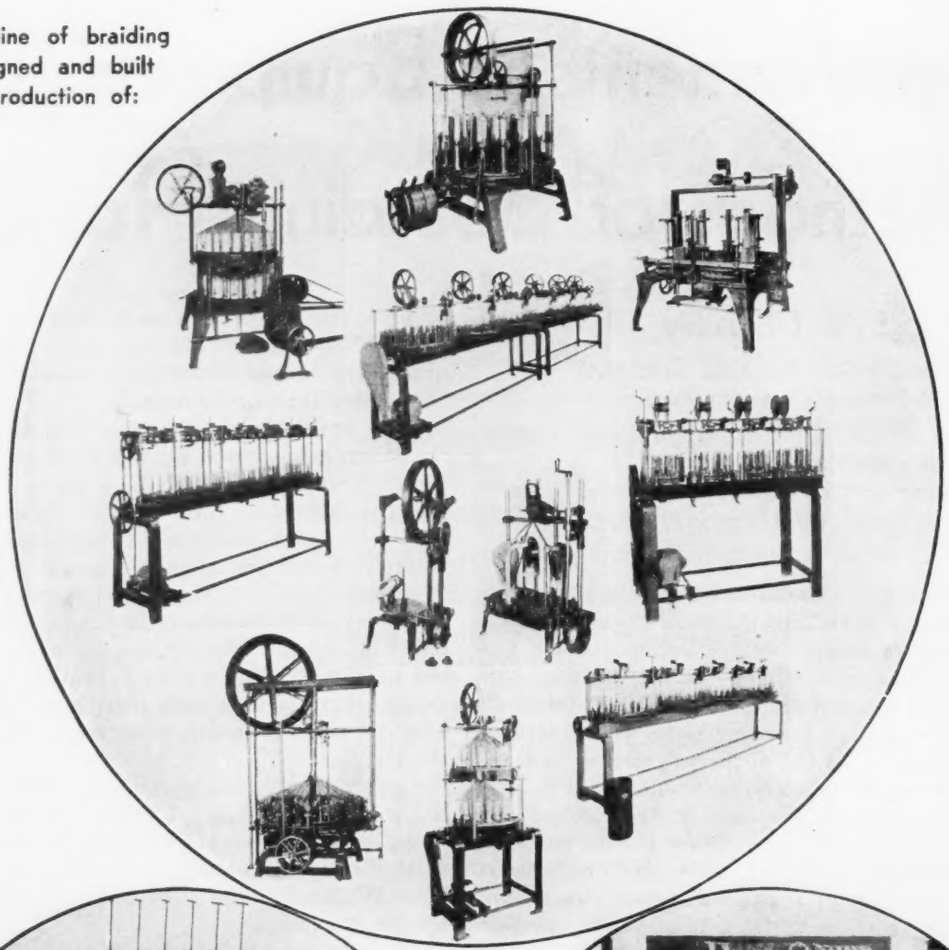

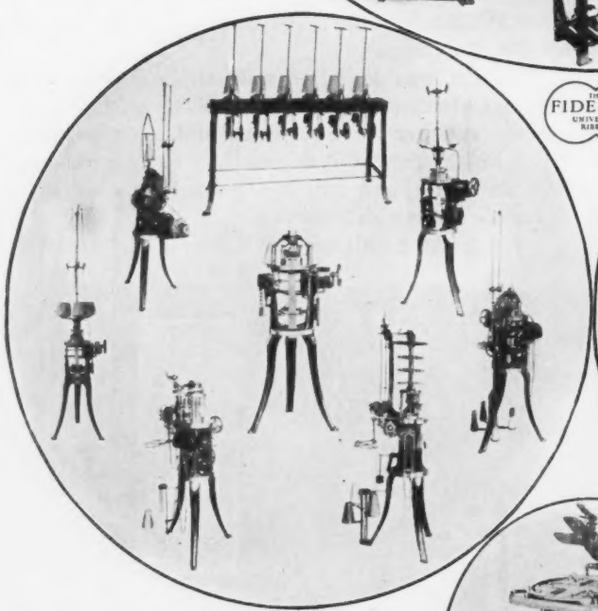

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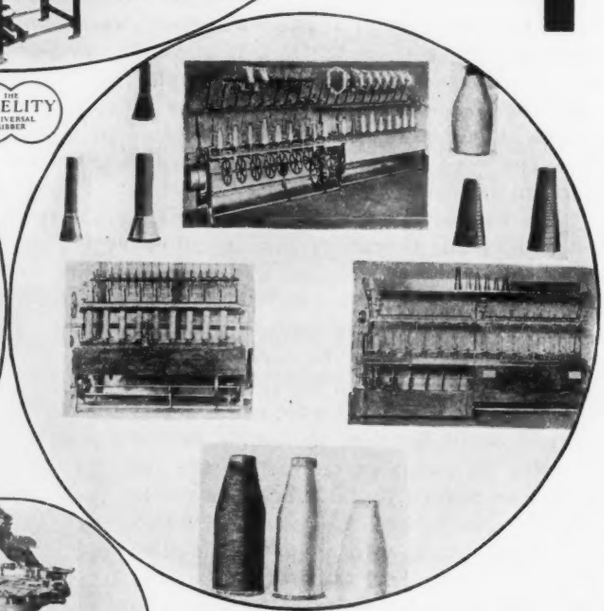

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MULTIPLE-DIE CREASING

KNITTING—BRAIDING—MACHINES—WINDING—CREASING

FIDELITY MACHINE COMPANY, - PHILADELPHIA, PENNA.

a higher temperature. The temperature can be regulated on any unit to suit any one given style, but could not be regulated to suit some tables on chiffon weight and some on service weight at the same time. The best results can be obtained by giving each operative 24 forms for all styles.

The latest developments—

With the current demand for service wear on chiffon hosiery it has been necessary to add extra heavy splicing at the points of greatest wear, such as the hem, heels, soles and toes. This condition has brought about a combination of a service and chiffon weight stocking and added a new problem to the drying form. The low temperature desired for the sheer fabric is too slow for the re-inforced sections. The form makers are now attacking this problem in their new equipment by again heating with steam and insulating the section of the form where the sheer portion of the stocking rests and giving full heat at the heavy or reinforced sections. This method will reduce the number of forms necessary for one operative as it speeds up the drying at the slowest point.

These new units are grouped compactly on a small stand and one board is brought into workable position at a time by motor-driven mechanical device. This arrangement permits the operative to remain in a fixed position and eliminates the necessity of walking along the table from one board to another, and also conserves floor space.

With the various improvements outlined in equipment, we have the same human element to deal with in pulling the stocking on the form in the same old way. As a rule, boarders who have been trained on heavy cotton hosiery and socks never change over and make expert boarders on sheer silk hosiery. They are too heavy-handed and have too much lost motion. They handle the stocking too much at too many places. The best boarded stocking is the least boarded stocking, that is to say, the stocking put in the correct position by the fewest movements. If it were possible to place the stocking on the form by magic and never touch it by hand, this would be the ideal method. It used to be just any old man's job, but it has come to be an art that requires a woman's touch, and the modern boarding room has progressed to a department where working conditions are in keeping with other departments of a well organized hosiery plant.

As stated before, the best results on the hot water form can be obtained by giving each boarder 24 forms and letting each boarder board his own work without the assistance of another. This makes the boarder feel his own individual responsibility and he has no alibi for any inferior work. He can regulate his speed in accordance with his individual ability and the difficulty of the work in hand. If it requires more time for a difficult hem or picot he is not pressed by a moving machine or the urge of an assistant.

The capacity of 24 forms has sufficient range to permit any variable speed that the operator finds necessary to produce a required quality.

Boarding is a very important operation and contributes much to the finished appearance of the product, and more time and thought should be given to how well it can be done rather than how fast and cheaply it can be done. This is the problem of a well managed boarding room.

In teaching a boarder, the emphasis should be placed on how to handle a stocking. Boarding can be made an easy job or a hard job, simply by the method employed. One man can work twice as hard as another man sawing a plank if he does not know how to pull a saw.

I often think of the energy wasted by most people in using a file or a hack saw. These tools only cut one way, and how some people bear down on them on the backward stroke is amusing. The same principle applies to boarding. There are enough false moves, and enough energy wasted, in the average boarding room, to increase the production 20 per cent.

As an illustration: it is much easier to twist a stocking off the board than on it. In raising a stocking to start it on the toe of the board, with a little practice, using the sense of touch, the seam can be turned to the right fingers so that it will be near the groove in the edge of the board when it starts on the toe. Then again, the slight adjustment of the seam to the proper position in the groove can be made more easily with the stocking loose on the board than when it is tight. The loose fabric can be moved into position without making diagonal marks on the fabric by the sharp edges of the board.

The toe can be placed best in position with the left fingers while pulling the sole gently by holding the heel out of place above the heel of the board with the right fingers. This prevents burning the right fingers against the heel of the board.

The heel of the stocking should not be placed completely on the heel of the board

A large installation of regular type of hosiery boarding, in a well-known mill . . . . . .

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The prescription for better knitting

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until the toe is properly set, then the sole can be pulled hard enough to permit the heel to go into place in an easy natural way without strain, which makes a wide heel pocket. The shortest lines in the foot are the seam and the inside sole selvages. The seam is stretched in placing the heel and then the inside selvage is stretched to match in order to give a square blocked heel effect.

In starting the stocking on the form the hem should be held between the fingers on either side up in the hem near where the hem joins the boot, with the back seam near the grooved edge of the board. The first pull should be smooth and gentle, so as not to put any undue strain on the leg, and also not to pull the hem and picot edges all out of shape.

It will take almost as much time to straighten out and square up the picot edges on an improperly boarded hem as it will to board the whole stocking, and even then a hem which has been turned inside out and stretched out of shape on the first pull can never be boarded to look as well as one not so abused.

After the first pull, the calf and ankle portion of the leg is worked down, leaving the bottom of the heel tab standing loose above the heel of the board for a finger hold. At this point the whole leg should be worked down loosely and the back seam placed in position while the leg is still loose on the board. In other words, board the leg of the stocking, all except pulling it down tight before boarding the foot. Then if the leg dries while the foot is being boarded it dries in the right position and no edge or crease marks are made.

The second move is to board the toe. Place the toe in position with the left fingers while holding the heel tab in the right fingers and pulling against the sole toward the heel at right angles to the leg. On this pull the heel should be pulled to the right in the direction of the adjacent board at the right. This pull will stretch the sole along the seam line and place the heel pocket in position to drop on to the heel of the board in a free and easy manner without bulging the heel pocket. Then drop the right fingers down to the inside sole selvage corner and stretch this inside seam to match the bottom seam to square the heel and make it stand at right angle to the foot. With the seam in the leg in place and the foot boarded, all that is left to do is to pull the leg down reasonably tight and square off the welt.

There is nothing to be gained by pulling a stocking unreasonably hard to a given mark on the board in order to get even lengths. Even lengths are a fine and desirable thing to have provided they are knit even lengths. On the other hand, there is a distinct disadvantage in pulling a stocking too hard to get length. There will be a compensating natural adjustment when the fabric comes off the board and absorbs its natural moisture, which will cause the finish to break down and let the stocking contract in both width and length.

I have never forgotten an expression of an old English finisher which I heard when I was a boy. He said, "Damn a stretched stocking." For this reason there should be the closest co-operation between the boarding room foreman and the sizing man in the knitting room. The sizing man should visit the boarding room every day and check up on how the goods are fitting the forms. The boarding room foreman should check any unusual lengths or off-size to see if they are confined to any one machine, and if so, report it to the sizing man. Many other defects, such as chafed wales, narrowing dropped stitches, misplaits, etc., should be reported immediately by the boarding room foreman to the sizing man, who, as a rule, is also the quality man in the knitting room. I recall on one occasion having one of my friends visit my boarding room. On looking over the work he remarked that it was "unusually good boarding". I replied that it was just a combination of average boarding and good knitting, which is only another way of saying that if a stocking is to be correctly boarded it must be correctly knit.

Good knitting aids the boarding—

With the boarding room foreman working with the sizing man and furnishing him samples of various defects showing up daily and keeping the knitting department keyed up at all times, a much better product will be the result.

In stripping stockings from the boards I find that better results can be obtained by stripping three stockings at a time and re-filling three boards rather than a larger number. The boarder can take care of the work better and the boards will be kept filled longer, which will permit lower temperature on the boards and slower drying, which gives a better finish.

The same co-operation required between the boarding and knitting room is also necessary between the boarding department and the dyehouse. I think the dyer should also be an expert boarder. He should be able to go into the boarding room and see if his goods can be properly boarded without any unnecessary effort on the part of the boarder.

A stocking that squeaks when it is drawn on the board or sticks to the board when it dries is not properly finished. No finishing materials should be used in the dyehouse which will give these results.

The proper combination of finishing materials will produce a finish that will facilitate the boarding operation, as well as improve the appearance of the product.

My experience has been that the boarding room is a fine index to the efficiency of the whole plant, and the man who gives much thought and attention to this department will be generously rewarded.

Strange, isn't it, that an overseer or superintendent must continue giving the same instructions and orders to the same people day after day, month after month?

Yeah, that is strange, but stranger still, is the fact that those same overseers and superintendents must have someone give them practically the same orders day after day, month after month and year after year.

Gosh! it does look like we would learn some time, doesn't it?—OLD-TIMER.

WHEN EVERY STITCH COUNTS—

DEMAND

Chalkelle . . . . . Dulesco

Crown Rayon Yarns

THE NEW RAYON OF FASHION

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Have you seen the new Crown Rayon Chalkelle? Permanently dulled finish yarn, the textile achievement of the year . . . Adaptable to underthings, to sports and formal fashions!

CROWN RAYON YARNS, the NEW Rayon of Fashion, Product of The Viscose Company, *World's Largest Producers of Rayon* • 200 Madison Avenue, New York City • *We comply with the NRA*

Uses Oil and the One-Bath Method for Dyeing and De-Gumming Silk Hose

By W. Ashton Daniel

Dyer, Knitting Dept., Wiscassett Mills Co.

THE dyer in a well-known southern mill here revives two subjects which were discussed thoroughly in the "Knitting Kinks" department some time ago. Other experiences are invited . . . . . .

THERE have been several articles and discussions in COTTON relative to the dyeing of silk hosiery in an oil bath or a soap bath.* Several years ago there were quite a number of dyers using the two-bath method of dyeing hosiery. It is my opinion that hosiery manufacturers and dyers will soon see the advantages of dyeing in an oil bath just as they have seen the advantages of dyeing with the one-bath method, for it is generally known that dyers are gradually adopting the one-bath method.

If there are any dyers at present using soap to de-gum silk hose while dyeing with the one-bath method, there is no question in my mind but that when they change to oil—as I believe they will eventually do—they will find that in the past they have been utilizing unnecessary time and expense, and will wonder how they "got by" with the finish and feel of the hosiery they were sending to the finishing room.

In the first place, I have not found that soap has the leveling action for dyers that oil has, and it has been my experience that the utmost care must be taken in order to turn out goods that are not streaked or spotted. We all know that soap at a boil dissociates and forms free carbonates, as boiling goes on, thereby increasing the alkalinity of the dyebath. One can readily see what happens when this takes place. The pH of the bath is increased and this is one of the sure causes for the sulphon cyanine type black or other colors to reduce. Prolonging the dyeing operation in order to bring the batch up to shade will result in chafed goods and broken fibers. This fact alone is a convincing argument for many for the use of oil, especially when dyeing by the one-bath method.

Oils, on the other hand, act just the opposite. At the start of the boil the pH is high and as boiling is continued the pH of the bath drops. This dropping of the pH of the bath when using oil, which usually takes place in 15 or 20 minutes, enables the dyer to run the batch several hours, if necessary, without in any way impairing the goods. If the soap bath is run several hours the result will be a chafed and "well cooked" batch of hosiery.

I may state right here that, in my opinion, in order to get best results in finish, feel, saving of time and money and trouble, etc., the goods must be entered at a boil and oil must be in the dye bath.

If a dyer starts his bath at 100 degrees F. or 120 degrees F., using soap, he will surely get much sudding at first and if the dye is not added very rapidly some of the dyestuffs will ride over the front and back of the machines on the suds. When this takes place it is almost impossible to keep an accurate record or formula on any shade. Therefore, if one is not able to locate a de-gumming oil suitable for his purpose, then I recommend by all means that he enter the goods in the soap bath at a boil in order to eliminate this foaming and sudding which one gets at lower temperatures. However, as there are many manufacturers who have on the market at present several good de-gumming oils, there is no excuse for the dyer not obtaining one which will suit his individual conditions and requirements.

Not only is oil recommended for de-gumming and dyeing silk hosiery, but I also recommend it for the dyeing, and I might say de-oiling, of rayon-and-cotton mixed hosiery. By de-oiling, I mean the boiling out of all rayon oils and foreign matter that the rayon comes into contact with in the knitting and also in the manufacturing. This oil must be removed before level dyeing and well finished hosiery can be obtained. If this rayon oil is not removed, especially if the hose is made water-repellent, the water-repellent compound coming into contact with whatever rayon oil remains in the goods will cause spots and streaked goods. Here again oil has an advantage in that soap will not emulsify these oils to the extent that they will be washed out of the hose.

As I see it, and as experience has taught me, there is one more reason why oil should be used in the dye bath. That is, that soap is very hard to rinse out of the hose, and if it is not entirely rinsed out it will, upon ageing, cause the hose to become yellow and in all probability produce a rancid odor on the hose.

In conclusion, I will summarize the most important reasons why I feel oil is much better in dyeing full-fashioned hosiery than soap: 1, better finish and feel to the hosiery; 2, better leveling action for dyestuffs; 3, reduction of dyestuffs less likely; 4, longer running of batch, if necessary, without any harshening effect; 5, more accurate formulae may be kept; 6, oils in rayon and silk are easier and more quickly emulsified; and 7, more economy.

*Several years ago, in the "KNITTING KINKS" department, a number of mills answered a question on this subject, and also with reference to one-bath versus two-bath de-gumming and dyeing. It would be interesting to have these mills now report, following their further experience, as to whether they have retained or changed from the practices then in use; and why. These mills, and any others, are invited to discuss this subject further for "KNITTING KINKS".—The Editor.

PLAN TO ATTEND

The Thirtieth Annual

KNITTING ARTS EXHIBITION

COMMERCIAL MUSEUM

Philadelphia

April 23-24-25-26-27

Under the joint Auspices

NATIONAL ASSOCIATION of HOSIERY MANUFACTURERS

and

THE UNDERWEAR INSTITUTE

The largest machine manufacturers in the industry—together with the manufacturers of mill supplies and accessories—exhibit their products at this Exhibition for your benefit. It is the most economical way for you to view the latest improvements and progress made in the industry during the past year.

Every mill official should attend and encourage his employees to do so. There will be a wealth of new ideas and improvements to take to your factory that will cut production costs.

No event on the knitting calendar surpasses this complete display. Practically all exhibits will be in operation.

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Reduced Railroad Rates on all Lines

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REMEMBER THE DATES—PLAN TO ATTEND

Albert C. Rau, Manager

327 Park Square Bldg., Boston

Recent Trends and Tendencies as to Making and Selling "Ringless"

THE fame of "Ringless" hosiery seems to have preceded retailer preparations for offering it to the public; notwithstanding the adverse comment that was circulated through trade publications and may have reached the consuming public. Speaking of the term "Ringless", it will probably fall into disuse entirely and a better descriptive term take its place.

Objection to general use of Ringless seems to have been voiced first among some of the Central West large retail establishments, in criticism of Eastern dealers. It appears this objection was due to the fact that so many women were asking for Ringless hosiery while numbers of retailers were still skeptical and not carrying it in their stocks. It was the experience of one important distributor to retailers that they desired to reduce their stocks of plain hosiery before making the Ringless available.

As was pointed out, the women who were asking for the Ringless type and were able to buy it at a reasonable price gave it preference over types that were not described by retailers as Ringless. This, of course, served to retard sales of true Ringless particularly while the product of mills, which were experimenting with methods of their own, proved unsatisfactory. It was not surprising that numbers of manufacturers who had attempted the Ringless, even with the latest models of three-carrier attachments, lost their enthusiasm.

It seems to have been assumed by some concerns attempting the production of Ringless that the attachment was all that was necessary for escaping the shadow effect of zebra stripes. Further experience by some of the manufacturers forced the conclusion that low priced silk might prove disastrous to the hope of solving the problem as to how the rings in silk stockings might be eliminated; but even with the use of the better quality silk, it remained necessary to exact very close inspection and a liberal throwing out of any stocking failing to measure up to the highest standard adopted by the more ambitious mill owners.

In view of successive revelations as to the character of silk required for obtaining the better results, throwsters have been co-operating with manufacturers in experimentation, and it is stated that some very satisfactory results have been obtained in the direction of a more nearly 100 per cent production of stockings free from a blemish that could probably be charged to the silkworm.

Some very recent hosiery advertisements, while making no mention of Ringless, stressed the importance of using "fresh" silk, recalling to the minds of many hosiers a page advertisement in a widely read weekly publication of November 6, 1926, in which the manufacturer, advertising his line, stated among other things that only "twenty-four days elapsed from Filature to Foot", seeking to make it appear that the silk in the stocking was virtually as "fresh" as when the silk worm got through with its job and was succeeded by the reelers in Japan. Of course, this was stretching a point, and it is recalled that the publication intimated that it did not want any more such extravagant assertions in advertisements appearing in its pages.

Some of the more enthusiastic believers in Ringless hosiery made by the three-carrier device predict that it will represent more than 50 per cent of the silk full-fashioned hosiery sold in the better retail stores. One particular enthusiast points out that manufacturers must not exact such prices as would penalize women for wearing 100 per cent Ringless hosiery. There is a considerable saving in production by reason of a very radical reduction in the number of seconds and irregulars. The Ringless may become standard in no less extent than the picot now is, but to achieve the desired results from the many months of experimentation, manufacturers will require good silk, to begin with; proper conditioning, and proper knitting. The public wants a clear silk fabric, but its production must be on an economically sound basis. Otherwise, it could not be successfully sold permanently. It must present an advantage in addition to freedom from stripes or rings, and a washboard effect.

Will "Ringless" be discarded to make way for another descriptive term?

Referring to a suggestion that the word "Ringless" as a descriptive term will fall into disuse, if it has not already been abandoned, it was found through observation of consumer reaction to offerings of hosiery priced higher than $1 a pair, that when Ringless was mentioned they were prone to expect too much, just as many manufacturers, at the outset, seemed to feel that every stocking made with the three-carrier device would come off the machine 100 per cent perfect. Such an achievement would border on the miraculous.

A trade publication notes in its comments on the Ringless type that a manufacturer who has installed approved attachments for making it has reduced his throw-outs by around 16 per cent. He is quoted as saying he believes that eventually there will be an increase in the number of throw-outs and that the production of Ringless will be recognized as a necessary economic step.

Increased consumer demand is expected during the summer months, and it is believed that by that time manufacturers will have solved the problem of how to produce the Ringless stocking at but little more than the cost of the prevailing type.

It is commonly admitted in the trade that progress thus far in the elimination of stripes, rings, and washboard effects justifies the expenditure of all the time and money devoted to experimentation. Henry Ford was quoted recently as saying that if the public had been satisfied with the original type of automobile, the automobile never would have become popular. Had the public been satisfied with stockings showing the rings, etc., there never would have been an effort to eliminate them.

It is interesting to advert to the comment of a rather recent skeptic as to the future for Ringless stockings. The writer makes free to credit manufacturers with having reduced seconds from the multiple carrier device by 15 per cent to 30 per cent, whereas the same manufacturers formerly were getting 45 per cent to 50 per cent seconds. On the subject of blemish in the fabric due to unevenness of silk, this manufacturer says, "My honest opinion is that when the consuming public is once educated to what washboard fabric really is, and start to demand the elimination of that effect," it will be found that goods having the washboard effect will be far less objectionable than the rings.

Styling Men's Hosiery.

EDITOR COTTON:

The development of machines for knitting men's hosiery has progressed to the stage where pattern possibilities are practically unlimited. When fancy hosiery first became popular, styling was not an important factor, as only a few pattern variations were possible. With the increase in pattern possibilities it has become necessary to study the various factors which influence the demand for hosiery.

These items listed in the order of importance are summarized as follows: Machine limitations; construction and material development; cost or profit possibilities; color trends; competitors' offerings; consumer's point of view; and promotional possibilities.

Each of these factors has a definite bearing on the development of the respective styles to be made up for a given line. The information necessary for the various items to be considered can be obtained from sources as indicated under each item and by analyses made as outlined.

The styling of a line is always dependent upon machine possibilities, therefore it is essential that a close contact be established between the hosiery manufacturers and the machine builder. This contact will keep the manufacturer informed of future developments in process. The machine builder in turn is posted as to style trends, so that he is able to adjust his development trends to conform to style demands.

Yarn manufacturers are constantly experimenting with new types of materials and yarn combinations. Due to existing material prices it is possible to use materials which were formerly prohibited, because of price, thus producing new effects. Because of these developments and price changes in materials, it is necessary to establish a close contact with the representatives of yarn manufacturers.

Sample stockings of proposed construction should be knit and analyzed for cost on the basis of new material and labor prices. Each style must then be designed from the standpoint of construction and pattern to permit a reasonable profit. Competitive merchandise must also be kept in mind in determining construction, design and profit margins.

The correct colors to be used for a given line must be determined from information gained from various sources. Styles of previous lines should be analyzed to determine sale trends which must then be discounted on the basis of the selling season for which the hose is intended. Manufacturers of suitings, shirts, neck wear and shoes must be contacted to determine their coloring and pattern types planned for the season, in which the hose in question are to be sold. In this way the hosiery can be made to blend and harmonize with the other parts of the wardrobe. The information can then be checked with developments made by leading yarn and dyestuff manufacturers.

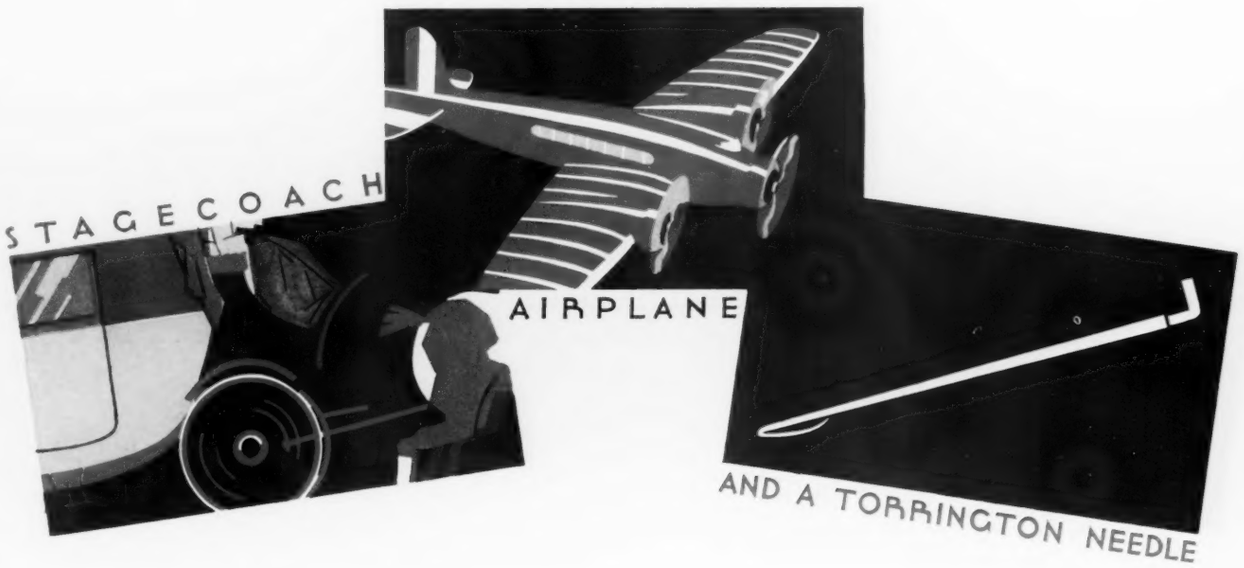
The competition offered by leading manufacturers must be studied for developments in materials, equipment, design and trade acceptance, so that specialties developed by them may be duplicated or improved upon, should a particular demand arise. This information can be obtained by close personal contact with influential buyers, material and machine manufacturers, and a close study of leading trade publications.

The styles, to receive trade acceptance, must be made up to meet the consumer's point of view. This can be determined by contacting buyers of important outlets for the various classes of goods sold, to determine what styles in one's own line and also in competitors' lines are selling. Information as to competition in the various territories can be obtained from a mill's own salesmen, who can also furnish ideas as to requirements, such as pattern types, colors and materials. Contacting one's own salesmen will assist in making them style conscious and in obtaining ready acceptance of the lines when the samples are received by them for presentation to the trade. Having aroused their interest they will accept the styles readily, feeling that their ideas have been utilized in making up the line.

The information gathered covering consumers' needs, competition, color, pattern trends and machine developments, can then be summarized and passed on to the salesman when the samples are sent to him. This provides logical sales and style information to the salesmen, placing them in a position to be of assistance to the buyer, so that the buyer will look to them for logical information covering his requirements. This makes it possible to hold the interest of the buyer and in turn increases the volume of sales.

This information also places the stylist in a position to design and construct hosiery that will harmonize with other accessories of the wardrobe, thus meeting with ready acceptance and resulting in increased sales volume. CONTRIBUTOR NO. 6212.

MADE TODAY'S WAY



TORRINGTON needles are made today's way . . . *by machine.*

In this they have followed progress. Take transportation, for instance. We used to ride behind horses. Fine animals, no doubt . . . but neither as swift nor as sure as the high-powered motor cars and trains and planes of *today* . . . the transportation *machines.*

The machines that make Torringtons are as up-to-date and powerful and sure and swift as the age they represent. Consequently, Torrington needles are *better.*

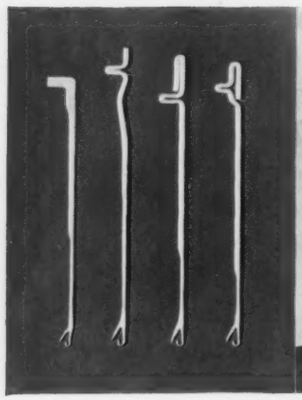
TORRINGTON *SPRING BEARD* NEEDLES

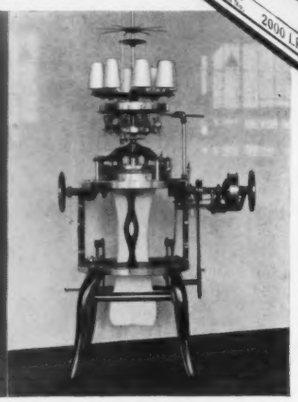
Fine FABRICS

CUT AND FINISH are important . . . but *fine fabric* is probably the leading contributor to the success of underwear. Therefore, when such fabrics as these pictured here are produced, we point with considerable pride to the fact that the machine that made them was equipped with Torrington needles.

You can't knit a fabric without needles . . . and you can't knit a *fine fabric* without *good needles.* "Torringtons" is another name for good needles!

Scott & Williams' Automatic Rib Underwear Machine knits these fine underwear fabrics, 20-cut tuck-and-plain and 18-cut plain . . . with Torrington needles!





The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

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TORRINGTON *Latch* NEEDLES

A History of Standard Knitting Machines--Helpful Hints on Standard Fixing

EDITOR COTTON:

As an ardent reader of COTTON permit me to state that I am very grateful for the timely tips and helpful suggestions which appear in every issue. I am especially interested in the "KNITTING KINKS" department and would like to say "Thank you, boys", to you and those who contribute to this department so generously. Hoping to join in with your other contributors, I submit herewith for your approval the first of a series of articles pertaining to the general care and adjustment of Standard knitting machines. I have chosen to call these articles Helpful Hints for Standard Fixers. A general description of parts will be given for the benefit of fixers' helpers, or those not familiar with Standard machines. The plain Standard H will be taken up first and the parts names and numbers as shown in the Standard catalog will be used for reference wherever possible.

First, I will submit briefly some interesting facts about the history of the Standard machine which it has been my good fortune to obtain. While we turn the calendar back to the year 1892 we will make a hurried trip to Frankford, Philadelphia, Pa. Here we find a Mr. Harry A. Houseman employed by the firm of Sprowles and Houseman, a general jobbing shop, owned by Mr. Houseman's father and Mr. C. B. M. Sprowles. Mr. Harry A. Houseman had been interested in hosiery knitting machines for some time, and in 1892 through his efforts the firm of Sprowles and Houseman placed the first Model A Standard knitting machine on the market.

This machine was considered to be the only fully automatic machine in existence at that time. Other machines of the so-called three-quarters, seven-eighths and fifteen-sixteenths automatic types were in use, the various classifications were governed by the number of hand operations required to run them. It is not my pleasure to know exactly how long Mr. Houseman labored to build his first machine, but it is safe to assume that he burned the midnight oil many a night, worked hard and diligently to accomplish that which he set out to do. Little did he realize at the time that he had laid a firm foundation for a successful, fast-growing organization.

The Model A Standard was so well received that the firm of Sprowles and Houseman found themselves unable to build machines fast enough to take care of the ever-increasing demand. Consequently, arrangements were made with Trump Brothers Machine Co. of Wilmington, Del., to build Standard machines. Trump Brothers were well equipped to do this work, being builders of the well known Nye & Tredick rib machine; in addition to this they hau also built a few semi-automatic Branson machines, other light machinery and machine tools. With the burden of supervising the building of machines now off of his hands, Mr. Houseman began immediately to improve the Model A and in 1896 the Model B made its appearance. Then followed C, D and E. The latter three consisted of a lace attachment, a three finger and five finger striping attachment which were applied to the Model B. The nimble mind and fighting spirit of this remarkable man were still at work; in 1904 he placed the Model F on the market, followed by the Model G in 1913. Each model marked a distinct advance in both design and production possibilities over the one which preceded it. All were unlike any other hosiery knitters in construction and appearance, due mainly to the unique principle of needle manipulation during the heel and toe knitting which was employed in place

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Editor's Note—This first article in a series discussing the Standard knitting machines is presented in line with a program of discussing, from a practical standpoint, the leading circular knitting machines and their operation. There is appearing alternately with this Standard material a current series on the Scott & Williams machines and their parts; several installments have already appeared. A series of five similar articles on the Banner split-foot appeared recently.

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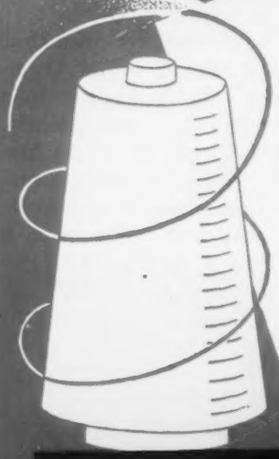
WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

COLOR SERVICE



Let us send our Color Expert to your mill, to help you develop new shades for your line, and to assist in your general color problems. Our service will greatly aid the styling of a well balanced, better-selling line.

Mercerized by our exclusive process, even-dyeing Aberfoyle Durene Yarns naturally take richer, brighter colors.

ABERFOYLE-MANUFACTURING COMPANY

123 South Broad Street Philadelphia, Pa.

aberfoyle

REPRESENTATIVES IN LEADING CITIES THROUGHOUT THE WORLD

Durene YARNS

of the conventional up and down picks. During this operation the needles were not elevated to an inactive level by switch cams and picks but were successively rocked by needle levers, one of which was associated with each needle so that the needle butts were sunk into a deep slot out of the path of the knitting cams.

The Model F proved to be a good seller, more of this model being built than any other. The machine would run at high speed, much faster than any other machine on the market, and turn out excellent goods. It was sturdily built, making possible a low maintenance cost and it did not require a master mind to keep it adjusted, due to its simple design and construction. Many mills had these machines in large numbers, humming along, turning out thousands of dozens. Some are perhaps still in use.

Truth is truly stranger than fiction, for all the inventing and designing necessary for each model and attachment was done solely by Mr. Harry A. Houseman. To say that he was a real inventor and a mechanical genius is putting it mildly; his work speaks for itself. Those who understand some of the ups and downs of knitting machine building can readily visualize how much this man really accomplished. Hunting and fishing were Mr. Houseman's chief hobbies. When the gunning season rolled around he would tramp off to Northern Maine and Canada to hunt bull moose, deer, elk and other big game. Numerous mounted heads of these massive animals adorned the walls of his office and home. Mr. Houseman was president of the Standard Machine Co. during the greater part of its existence, succeeding Mr. C. B. M. Sprowles. He was called to eternal rest in 1916. He was generous and kind, a true friend to all who knew him and devoted to his family.

During his latter years, Mr. Houseman was assisted in developing Standard machines by his eldest son, Harold E. Houseman. Until 1924 Standard machines were developed and sold by the Standard Machine Co. which was located in Philadelphia, the machines being built by Trump Brothers Machine Co. In that year a merger was effected and subsequently all selling, developing and manufacturing has been done by the Standard-Trump Brothers Machine Co.

After his father's death, Harold E. Houseman was given charge of developing and designing. Under his personal supervision and guidance, a new machine, the well known Standard Model H, made its appearance in 1919. Some of the fundamental principles of the Standard F were incorporated in this new model and many new and radically different mechanical features were added. Like other machines it was a revolving cylinder type employing up and down picks for heel and toe knitting; it would have been impractical to revolve the needle levers used on earlier models. Numerous attachments were added to the Standard H, such as two-feed, mesh, reverse plaiting, three and six color horizontal striping attachments and others. All of these devices and attachments were developed by H. E. Houseman. A man-sized job put over in a big way is an inadequate way of describing what he accomplished.

The next machine to appear on the market bearing the name Standard was the well known Model L. This machine is a stationary cylinder type capable of handling as many as 200 yarns to form elaborate embroidery patterns. In developing the Standard L model, H. E. Houseman was assisted by his brother, Wilbur L. Houseman, and Stanley R. Shelmire. The Standard-Trump Brothers Machine Co. was acquired by Scott & Williams, Inc., in January 1930, and in due time the now well known Standard 80-W was placed on the market. This machine is of the revolving cylinder type like the Model H and capable of handling up to 80 embroidery yarns. It has many outstanding features made possible by the combined facilities of Scott & Williams and Standard-Trump Brothers Machine Co. and was developed by H. E. Houseman, W. L. Houseman and Stanley R. Shelmire. H. E. Houseman is still in charge of the Standard experimental department with his former assistants. W. L. Houseman is also connected with the selling end. The Standard 80-W is without a doubt one of the most modern, up-to-the-minute fancy half-hose machines. A few years ago a well known hosiery man, seeing a Model H for the first time, was heard to remark, "It's a nice little machine, but no room has been left for attachments." If that gentleman will now look at a Model H and a Model 80-W standing side by side, he will have to admit that he was very much wrong.

In presenting Helpful Hints for Standard Fixers I do not intend nor claim to be able to offer any form of cure-all, sure-shot remedies for overcoming the various troubles which the average fixer encounters in his daily work. It is my intention and desire to pass on to the reader only such ideas and suggestions which from past experience and daily contact with other Standard fixers have proven to be practical and helpful.

Importance of Proper Oiling

Before we begin with the plate discussions I would call attention to the complete oiling instructions found on page 1 of the catalog. These were given not only to help prolong the life of the machine as a whole but also to make it operate efficiently. Knitting machines do not require any special blend of oil, but they do require different kinds of oil. By that I mean lighter or heavier grades, according to the amount of friction or wear and tear involved. Lighter grades of oil, preferably of a type that will stay put, should be used on needles and sinkers and in places where there is a possibility of the oil getting onto the knitted fabric. Such oils should also be of such a nature that they will wash out readily in the dyebath and they must have good lubricating qualities. For main shaft bearings, gears, pinions, etc., heavier grades of oil will give best results. Excessive slobbering of oil will do more harm than good. Using the proper amount of oil and doing a thorough job regularly will give results. One of the most common faults with the person who is supposed to be doing the oiling is putting it off to a more convenient time later in the day

when he "ain't so busy". He may be a victim of poor training or perhaps he does not realize that oiling machines is really fixing machines, fixing them so they run good or run rotten. Some years ago I heard an old fixer give an apprentice boy some good advice about oiling machines. After he had thoroughly explained where, when and how the oiling should be done he handed the boy his oil cans and said, "You have an opportunity to oil your way to a better job, or oil your way out of here. It's up to you."

In the second installment of this series, which will appear in an early number, we will take up in a practical way the parts shown on Plate 1 in the Standard machine catalog, and discuss them and their care and operation.

MARTIN A. SHAW.

Answers to Seaming Questions

Figures on best speed, production and percentage of re-seamers on full-fashioned work . . . .

EDIROR COTTON:

I am replying to the questions of "CONTRIBUTOR NO. 6298" who asked (1) What is the best speed to run a Union Special seamer for production and good work on full-fashioned hosiery; (2) What production is possible on seaming full-fashioned hosiery inside out; and (3) How many courses off of a perfect match at heels, narrowing, bottom of welt, and picot in welt, are inspectors permitted to pass without re-seaming?

(1) The best speed to run a Union Special seamer for production and good work on full-fashioned hosiery is a speed best suited to the operative. We would advise a speed of not lower than 2,600 r.p.m., and not above 3,000 r.p.m. All seamers are, or should be, equipped with cone driving pulleys so that a speed most suited to the individual operator can be reasonably obtained. Feeding the machine beyond a reasonable limit serves only to wear out the machine and hinder the operative in both quality and quantity of production.

(2) Seaming full-fashioned hosiery inside out is a rather difficult operation for an operator trained in the regular way. Then too, a machine set up for regular back seaming is not suited for inside-out work. Where inside-out work is to be done, the seamer should be equipped with special guide blocks and uncurling devices to facilitate the operation of inside-out seaming. After reasonable experience and a properly equipped machine, practically the same production may be expected as from the regular procedure.

(3) We know of no specific standard of mismatch of high spliced heel points, narrowings, bottom of welt, etc., permitted to pass without re-seaming. We would certainly say that the standard which the inquirer has set for himself—that is, three courses off at the heel or bottom of the welt, and narrowing off more than the distance between two narrowings, and the picot in the welt not meeting—is all the tolerance and more, too, than could be allowed for satisfactory quality. This subject has been so generally and thoroughly discussed in previous issues of COTTON that we feel there is no need for much further to be said on the subject.

It should be borne in mind, however, that much of the trouble in mis-matching on back seams is traceable back to the knitting machine, and too much attention cannot be paid to the items of good selvages and uniform knitting on both sides of the pattern. It is a very difficult job for a back seamer to do good work on a pattern with poor selvages or one that is knit loose on one side and tight on the other.

The correct adjustment of the seaming machine is also an important item. Careful attention should be paid to the tension adjustments, feed cup and guide adjustments, and positive action of the feed cup should be maintained at all times.

"CONTRIBUTOR NO. 6298" also asked what production might be expected on seaming seamless hosiery on Union Special and Merrow machines. The production of mock seaming seamless hosiery on either the Union Special or Merrow machine depends on the type of stocking and the class of work being done.

On some classes of seamless goods the mock seam extends from the back of the heel to the welt. On other types, all of the way through the entire length of the stocking down to the bottom of the sole. Naturally, the latter type is more difficult to do. Different mills have different systems for guiding their back seaming on seamless hosiery. Some use a sinker mark, others a special needle, and some use the solid type of seaming board and some the scissor type. We prefer the solid type, swing board. With a machine of this type properly adjusted and on average styles we would say that the production should run anywhere from eight to ten dozens per hour.

CONTRIBUTOR NO. 6299.

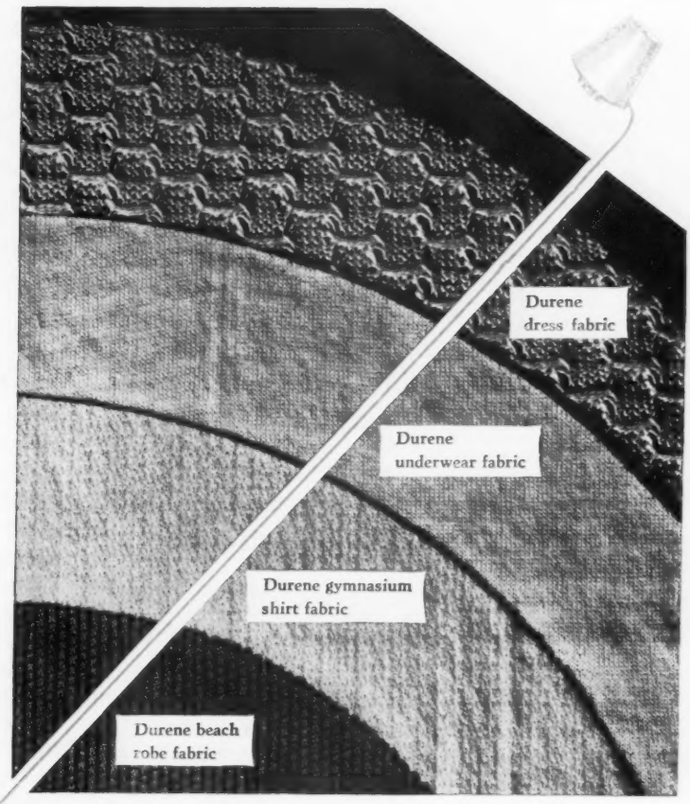
EDITOR COTTON:

This replies to the question of "CONTRIBUTOR NO. 6298" with reference to production, etc., on seaming machines.

1. The recommended speed for Union Special seaming machines on full-fashioned seaming is 2,750 r.p.m. We ran ours at 2,800 r.p.m., until the middle of last year, at which time we installed automatic oiling pumps. Since then we have run them at 3000 stitches per minute, and have seen no ill effects. A lot depends on the age and condition of the machines, clutches, etc. I would not advise anyone to run them over 2,800, unless they have the oilers and also a good man in charge.

2. On seaming full-fashioned hosiery we consider five dozen per hour a good production. Our seamers average slightly under that, but a good seamer can do slightly better when everything is right as to selvages, fabric, etc. This is on 4-thread work, 6-thread welt, 7-thread heel splicer, with 15 stitches per inch. I believe our best seamers should run more than they do at the speed of our machines, and am interested in hearing what other mills are getting. However, we are very particular in our work and insist on it being matched and of the highest type, which slows us down some.

3. We hold our seamers to two courses differ-



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ence at the heel; one at the bottom of the welt; none at the picot or stripe (by this I mean it must be stitch for stitch); the difference of the space between narrowings at that point. Our reseamers average about 1½ per cent. I should say that the inquirer is doing better than an average job, as given in his letter in the March issue of COTTON, judging by many of the hose I have seen recently.

With reference to seamless seaming, our work is all done on Union Specials. On 260-needle rayon ladies', our average production is 69 dozens in eight hours, while on 260-needle 7-thread silk it is 60 dozens. It seems it should be more and we believe it will be soon. I am interested in others' figures on this, too.

CONTRIBUTOR No. 6301.

Analyzing the Time Required to Produce a Set of Full-Fashioned Hosiery

Also, figures on estimated production of a knitter in eight hours . . . . . .

EDITOR COTTON:

I am replying to "CONTRIBUTOR No. 6301", who recently asked in "KNITTING KINKS" what should be produced in eight hours on 24-section Reading leggers, 60 courses per minute, on a 4-thread stocking with 1,448 courses to the looper lines and heel tabs, two white stripes in welt, three picots, 35 narrowings in leg (8 below welts, 27 at calf) and 4 narrowings in heel tab. He also wanted to compare what is considered to be average time for yarn changes, welt turning, etc., in producing a set.

It would seem to me that he has asked several important questions, all of which might be most satisfactorily answered by himself.

But, analyzing his question on the basis of the information given, we will first consider the fact that he has 24-section machines. It is a self evident fact that in a certain cycle of operation time the machine will produce one dozen pairs of patterns. It would certainly be easy mathematical procedure to consider 60 minutes per hour for eight hours per day to determine the greatest possible number of minutes in the day to be utilized. Then by multiplying 24 patterns by 1,448 courses, plus the 38 courses lost through the picot and narrowing operations. and dividing this product into the first product and determine one hundred per cent production without considering necessary operative time. Any experienced manufacturer will know immediately that such procedure is fallacious and impractical as 100 per cent machine time cannot be utilized in the production of full-fashioned hosiery.

Therefore, it remains to determine what portion of the machine time must be utilized in making the necessary operative moves. This can best be determined by a time study of the different necessary operations. Our observation has been that a skilled knitter can change his set, that is, press off a finished set and start on a new set, in three to four minutes time, and that welt turning requires four to eight minutes time. Generally speaking, we would say that around 45 or 50 per cent of the theoretical time of the machine is necessarily lost through operations by the operator. In other words we would say that the total cycle of time in producing a stocking of 1,448 courses with the machine operating 60 courses per minute should be around 45 minutes time, and about half of this time allowed for idleness of the machine and necessary changes by the operator. On this basis an operator should produce, in a practical way, ten or eleven dozen patterns in eight hours time.

As the contributor himself has aptly stated, the foregoing only resolves itself into the total time of producing a set which after all is the only practical method. It does not necessarily carry that a knitter that can change his set in three minutes or turn welts in four minutes is either the best knitter or the best standard to adopt in time study to arrive at the total operation cycle. However, such speed would indicate that a knitter was at least skilled in these particular operations and has his needles and welt bar points in good condition. But this does not necessarily mean that the same skill carries all the way through. One knitter might be skilled in such operations and at the same time not be skilled in many of the other necessary operations and might not be the attentive and desirable knitter from the standpoint of quality production and general maintenance of the machine as another knitter who might require appreciably greater time in such operations as changing set, turning welts, etc. So we would suggest that the inquirer answer his own questions by applying a reasonable amount of theory and a lot of practical common sense.

CONTRIBUTOR No. 6303.

Oil Versus Soap for Degumming

EDITOR COTTON:

I wish to give you my opinion in reference to the question submitted to you by "CONTRIBUTOR No. 6088", in which he asks whether or not a discussion could be had in reference to the single and two-bath method as well as using soap or oil for de-gumming hosiery.

In our mill at the present we deal with nothing but the laces, meshes and chiffons in women's work, and of course our experience has not been in the last few years with any of the heavy or service weights in hosiery, nor heavy cotton tops, however, we have had experience with this line some years back.

In considering the dyeing proposition, it is necessary to view it from two separate and distinct angles; the quality desired and the price that it cost. In dyeing up a low-priced stocking with a cotton top and a heavy re-inforced foot and a small silk boot, it might be more economical to run that in an oil, as there is no doubt about the oil being the cheaper to use. On the other hand, when making quality merchandise in laces, meshes and other light chiffons, it is a much better policy to employ the use of soap.

We have always found olive oil soap to give us

a de-gumming action that results in soft and fluffy suds. A soap lubricates the fiber and this of course is because of this sudding nature of the bath, allowing the goods to move more freely, which naturally does away with friction and allows for better penetration. Our experience with oil has been that it is a cheaper process and leaves a more rag-like feel. Soap, you know, shrinks; oil does not have this effect, so in using soap you have to use a special finish to bring the stocking back, which, of course, is another added expense.

Now, in reference to the one-bath method and the two-bath method, there is a lot to be said on both sides. We use the one-bath method because our hose boil out very quickly and we are able to get them out of the kettle more rapidly than we would if we used the two-bath method. However, this can be said about the two-bath method: It might be a better proposition on heavier work, and particularly if you could boil out the night preceding the dyeing in wooden kettles. This method has been used successfully by a number of dyehouses, boiling out in large wooden kettles the night preceding the dyeing, so that in the morning the merchandise is ready to be put in the dye kettles, and the additions made. For lace, mesh, and chiffon, the single bath method is so much quicker it gets the goods through without overworking, which after all is quite an essential point in handling light weight merchandise.

CONTRIBUTOR NO. 6100.

Some Practices in a Rib Knitting Department

EDITOR COTTON:

In this article I should like to outline for the readers of COTTON some of the practices in force in our rib knitting department. I trust that among the several items I shall cover there may be some that will appeal to each of your readers who operate this type of equipment.

We do not have humidifiers in our knitting room to take care of changing weather, and as a result our yarns become damp whenever it rains, resulting in the knitters running tight.

On our rib knitters, such as Wildman and Brinton machines, we would always have cut-outs during damp spells, and then these cut-outs would disappear as soon as the atmosphere dried again. We noticed certain machines persisted in making cut-outs regardless of our effort to remedy the trouble, until we discovered that this damp weather had affected our rope take-ups on these certain machines, causing them to shrink up due to the dampness, resulting in the take-ups coming up too high on their upward swing and hitting the underneath of the frame of the machine causing the fabric to pull hard on the needles, resulting in the cut-outs.

Remarks on Handling Yarn.

Amusing as it may seem, it had taken us some time to discover this trouble, so we adjusted these rope take-ups to allow for this shrinkage during the change in weather.

Keeping extra cones of yarn on each ribber will increase the production by making it unnecessary for the knitter to run to the bins for yarn when the machine runs out. We have our yarn man take care to see that he handles these yarns properly so that stripping from the cones is not necessary when the operator replaces the empty cones on the machines. The rib machines run out of yarn several times a day and this care is worth while. We have wire baskets, about 34 inches high and 14 inches square, which hold these empty cones. The baskets are small enough so that they are arranged between the machines in a position convenient for the operator. These baskets are emptied by the yarn man at intervals during the week.

Cleaning Machines.

These ribbers are cleaned with an air hose, outlets for which are conveniently arranged among the machines. This air hose, when not in use, is kept rolled up on a roller. The cleaning is done about 10 o'clock every morning and the operator takes care not to splatter oil on the yarns on the machine. Once during the afternoon the operator uses a cleaning rag, wiping off any surplus oil that may have collected.

Inspection of Work.

The operator on these ribbers inspects the work from each machine at least every 15 minutes. This inspection consists of pulling the fabric out of the work pan, spreading the fabric outward to look for tuck stitches on both back and front on both sides of the fabric; then inspecting the loose course and welt, and pulling out four ribs already made for casual inspection to see if any holes were cut in these ribs. The fabric is then put back in the work pan and the operator proceeds to the next machine. The operator becomes very proficient in this inspection and can note the slightest imperfection. This constant inspection is necessary due to the fact that rib fabric is made continuously. As the operator walks down the aisles, she feels the fabric on each machine for broken needles, which often occur.

As our inspection is kept to a high standard of quality the following defects are charged back to the operator.

1, holes; 2, drop stitches; 3, large imperfect stitches; 4, more than two small tuck stitches; 5, rough needle marks; 6, splicing missing; 7, wrong yarn; 8, too light or too heavy yarn; 9, yarn variations when evident; 10, loose rib very evident; 11, tight rib very evident; 12, ribs knit too large or long; 13, ribs knit too short; 14, imperfect or tight welts; 15, part or no loose course; 16, tight loose course which makes topping difficult; 17, short transfer trimming; 18, imperfect plaiting; and 19, imperfect needle spacing or drop stitch ribs.

Measurement of Ribs.

We measure these ribs with a flexible steel rule, three feet in length. Every morning the machinists measure the fabric from each machine by pulling it from the work pan and measuring from the loose course to the top of the welt of the rib. The ribs are not stretched during this measurement, the flexible

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rule being allowed to sag with the fabric. We allow ½-inch over the required length of the rib, but never under. We take these measurements every day in order to keep our lengths as uniform as possible.

Taking Up the Work.

One hour before quitting time the operators take up the work from the machines. This is done by cutting the last rib below the take-up of the machine, and

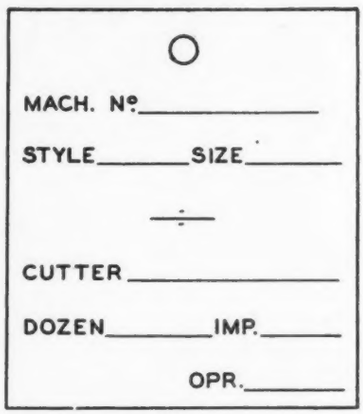

FIG. 1

pulling out the work by hand and tying it in a bundle, ready to be cut by the rib cutter. A canvas basket is used by the operator to put this work in as she goes down the aisle. This work is tagged by having a tag as shown in Fig. 1, showing the machine number, style, size, operator's number, etc.

Marking Needles.

Sometimes a ribber will make a tuck stitch or a streak in the rib which is difficult to locate on the machine. To trace this defect down, we use a green chalk. By marking the head of the cylinder needle about where we believe the defect is and also marking the wall of the cylinder where the cylinder needle was marked, as the fabric comes down below the take-up this green mark will show on the fabric in relation to the defect and it can be traced to the exact needle in the cylinder or dial.

Brush for Opening Latches.

We have found very convenient a small round brush such as is used on Scott & Williams knitting

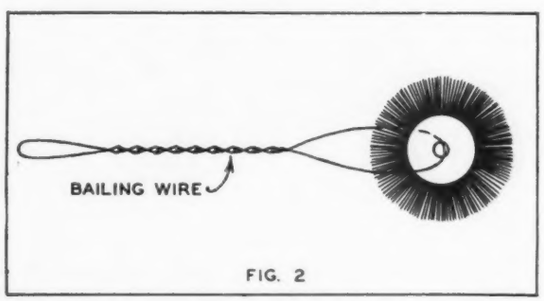

FIG. 2

machines for opening the latches in working down the fabric of a ribber when making a pick-up.

This brush is used for opening the latches of the dial needles as the fabric is being worked down by hand, by the fixer. Mounting this brush on a handle makes it easier to use. See Fig. 2.

Hook for Cylinder Needles.

Cylinder needles on some ribbers are difficult to change, due to the small opening and the compactness of the parts on some models of these machines. The spring bands around the cylinder at the point of taking out the cylinder needle must be pulled out to get the needle out of the cylinder. A convenient means of doing this is a spring puller which is illustrated in

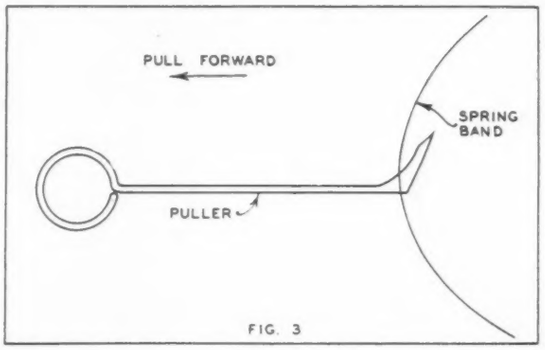

FIG. 3

Fig. 3. This puller can be made out of almost any kind of wire, preferably about 3/16-inch, the end flattened and the handle bent as shown. To use this puller, the flattened end is inserted underneath the springs and pulled forward, allowing the cylinder needle to be taken out easily. The same method is used in inserting the needle back in the machine.

Screw Driver.

We recently made a screw driver with a shank 26 inches in length. The purpose of this screw driver is to fasten down machines to the floor as they are changed around from place to place. Although this kink may not be of much value, it is handy to the fixer in his work and is appreciated here at our mill.

Needle Boxes.

As our rib department uses a large variety of machines in various gauges it requires a variety of cylinder and dial needles to fill the machines. Because of this large number of needles, we constructed a cabinet to hold the different styles and sizes. As shown

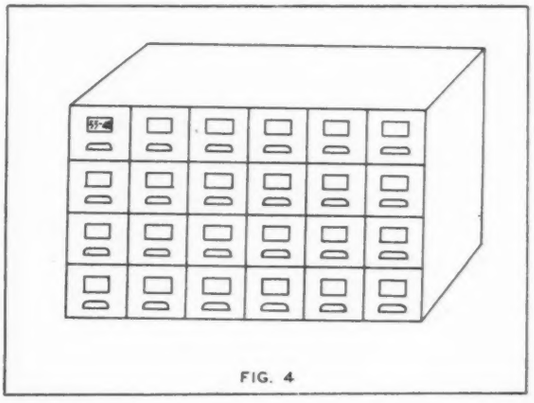

FIG. 4

by the illustration this cabinet has compartments with a flange on each for pulling it from the cabinet when

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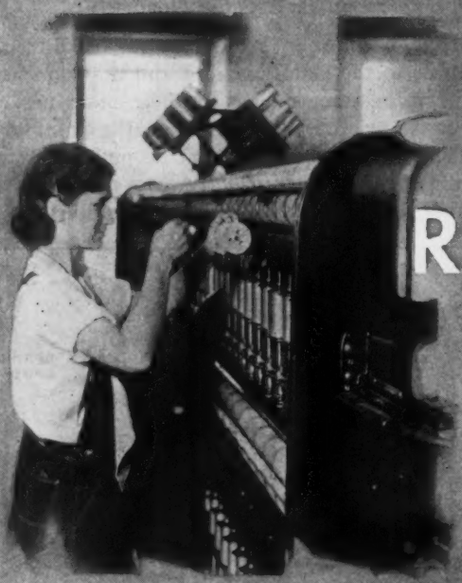
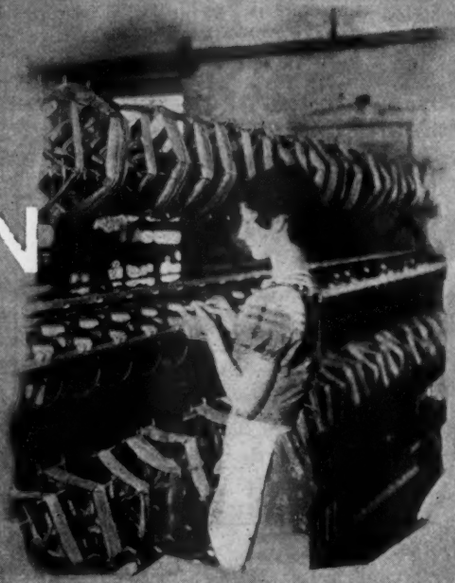


OILLESS "STONINGTON" WINDER



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needed. There is also a card fastened to each box designating the kind of needle in each box. The needle wanted can be spotted immediately and we have found this to be a very convenient method. See Fig. 4.

Bags for Gray Goods.

A considerable amount of our gray knit goods, especially ribs, are shipped from one plant to another in large heavy canvas bags. These bags will hold 75 dozen and are sealed when shipped.

As a means of holding these bags while they are being filled we made a pipe bracket. See Fig. 5. This

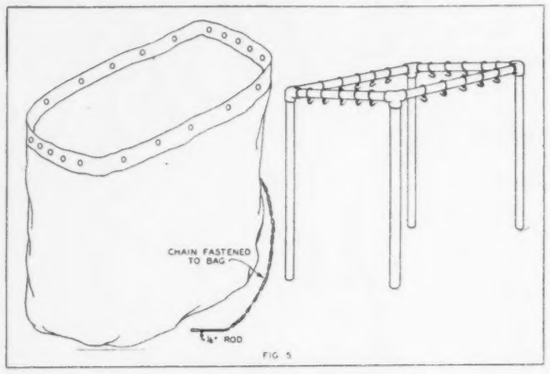

FIG. 5

bracket is made of 2-inch piping, and is 45 inches high, 25 inches wide, and 42 inches long, which are the dimensions of the bags.

These bags have a series of small holes around the edeg of the opening by which they are held to the bracket while they are being filled.

The hooks used on the bracket for holding these bags are made out of ¼-inch rod, and are bent around the piping to form a hook, and also they slide easily on the piping. The reason for this is that when hooking the bag to the bracket the hooks can be moved where wanted to line up with the holes in the bag. We have about five of these hooks on each piping, making a total of 20 on all four sides.

After these bags are filled, the bag is released from the hooks and a long ¼-inch rod about 8 inches in length is run through these holes around the top of the bag and a metal lock is fastened through a slot at one end of this rod.

Keeping Waste Down.

Rib operators can keep waste down by:

1. Making regular inspections on machines at least every 15 minutes.

2. Keeping extra cones of yarn on hand so that they can be replaced with the one about to run out.

3. On machines making plaited work, watch the cone which does not run through the stop motion.

4. In walking down the aisle, make it a habit to feel the work on the machine as it comes down, in search of broken needles.

5. Do not put yarn on any machine before first looking at it to see that it is the right kind of yarn to use on that machine.

6. Keep on the job.

Correct Band Wire Lengths for Ribbers.

Kind	*Diameter*	*Band Length*
Wildman	3 inches	8¾ inches
	3¼ "	9½ "
	3½ "	10¼ "
	3¾ "	11 "
	4 "	11¾ "
	4¼ "	12½ "
	4½ "	13¼ "
	4¾ "	14 "
	6 "	17½ "
Brinton	3 "	9½ "
	3¼ "	10¼ "
	3½ "	11 "
	3¾ "	11¾ "
	4 "	12½ "
	4¼ "	13¼ "
	4½ "	14 "

CONTRIBUTOR NO. 6070.

Left- and Right-Hand Looping on Seamless Hosiery

EDITOR COTTON:

I note with interest a request from one of your contributors for a discussion of the advantages and disadvantages of right and left-handed looping. We have not paid a great deal of attention to this fact in the past simply because there seemed to be little difference in the results secured by the respective operators. However, since seeing the request we have checked up carefully on the different operators and will submit our findings for the contributor's consideration.

We manufacture seamless goods only and have 70 loopers using Wright steady dial machines. Twenty of our operators are right-handed loopers, the balance left-handed. In checking up on the production of both classes we find them equal in total dozens looped and number of imperfects made by the operator. The percentage of fast loopers to the total in each class is also equally divided.

The reason that we have more left-handed loopers than right-handed loopers is that the instructor who taught looping was left-handed, that is, she looped left-handed. We also find that several other mills in this community have more left-handed loopers than right-handed loopers.

Among all of our left-handed loopers we have three who are naturally left-handed, that is, they write and do other things left-handed. The balance are right-handed in every respect, and all of our right-handed loopers are also naturally right-handed. We have several right-handed loopers who were taught by a left-handed instructor, who, after being questioned, stated that they couldn't get the hang of it the other way. This and other facts would seem to indicate that the average person seems to be able to learn left-handed looping easier than right-handed looping.

This may be due to the fact that a left-handed looper has the dial coming toward her while she works, whereas the right-handed looper follows the rotating motion of the dial. The actual difference between a right-handed and a left-handed looper

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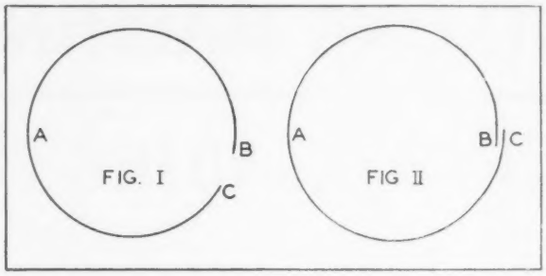
is that the left-handed looper starts putting the goods on her machine at the left-hand corner of the sock facing her machine, keeps her left hand above the dial, and works toward the right; the right-handed operator works in just the opposite way.

Two things are difficult in looping, they are: getting started properly and turning corners correctly, the latter being the more difficult to learn. The left-handed looper has an advantage in getting the work started on her machine, not because she is left-handed, but due to the manner in which the circular machine makes the loose course or looping line.

Fig. I shows a loose course made by a knitting machine not properly adjusted, the loose course is missing from *C* to *B*, and the goods will be hard to loop at this point. Fig. II shows a loose course all of the way around and lapped on a few needles as



it should be. When a knitting machine makes a loose course as shown in Fig. II, the right-handed looper has an equal chance with the left-handed looper, as far as getting the goods started on her machine is concerned. If, however, the knitting machine gets out of adjustment and makes a loose course as shown in Fig. I, as they frequently do, then the right-handed looper has a difficult task in getting started as she begins to loop between *C* and *B* without a loose course. The left-handed looper begins to loop at *A* where the loose course can always be seen even if it happens to be short as shown in Fig. I.

Once the sock is started properly it is not difficult for a good operator to follow a given course clear across and turn the corners correctly. In nine cases out of ten when a knitting goes wrong in the loose course it will be as shown in Fig. 1 and that is why we feel that the left-handed looper has a slight advantage over a right-handed looper in looping seamless goods.

The writer has also had considerable experience with full-fashioned loopers and does not recall any particular advantage of a right-handed or a left-handed looper. The main factor in connection with looping, as we see it, is that it is all wrong to teach a naturally right-handed person to loop left-handed, or vice versa, for in either case it will first be necessary to break them of being right or left-handed as the case may be and then teach them how to loop which really makes it doubly hard.

After all, it takes two hands to loop just as much as it does to play a piano or pound a typewriter, both hands doing an equal share, and much being left to the personal opinion and the handiness of the individual operator. CONTRIBUTOR No. 6285.

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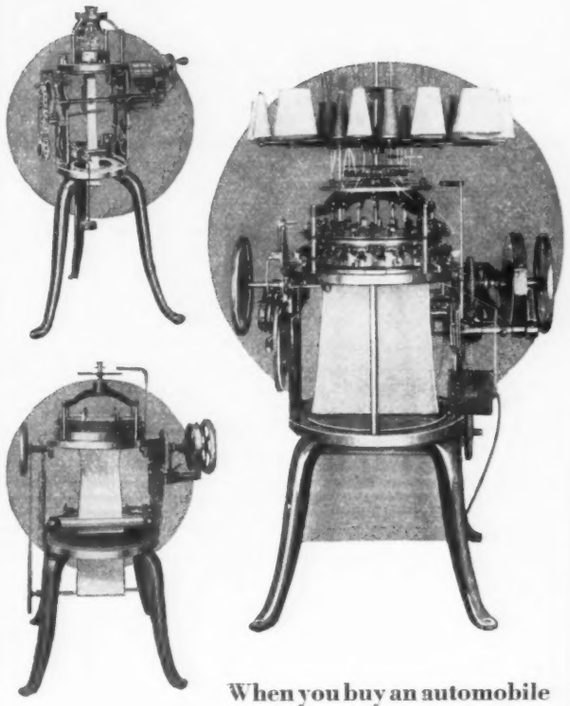

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THE KNIT GOODS MARKETS . .

THERE are questions incident to the production and marketing of hosiery other than that of surplus stocks that remain to be disposed of before the desired equilibrium or an approach to it will have been established. There are problems other than those of the manufacturers as a body that are expected to be solved, or partially so, before there can be established a measure of confidence among producers and their trade, to the end that all interests may know approximately their position in the sun as manufacturers.

This was brought out in an incidental way on March 16 at a meeting of the Full-Fashioned Hosiery Association, Inc., having an office at 1422 Walnut street, Philadelphia, in charge of Charles Lehmuth, the secretary. The president of this organization is William Meyer, who is president of the National Association of Hosiery Manufacturers and the chief executive also of the Apex Hosiery Co. and the Schuylkill Valley Mill, Spring City, Pa., a direct-to-retailer manufacturer of full-fashioned stockings.

Meeting of eastern knitters—

The meeting had a report from a survey as to the high and low average scale of wages in the full-fashioned industry. The purpose of the survey was to arrive at a basis for a possible change in the minimum wage provided in the hosiery code. The returns were referred to a committee to formulate recommendations concerning the proposed change. The committee consists of J. C. J. Strahan, Strahan & Co., Philadelphia; Stanton D. Sanson, Ajax Hosiery Mills, Phoenixville, Pa., and J. Lloyd Keller, the Chalfont (Pa.) Hosiery Mills.

The matter of a charge to full-fashioned knitters for needles, a subject of perpetual controversy between manufacturers and employees, was disposed of by the adoption of a resolution that the knitters be charged 50 per cent of the cost of the needles to mills. Some manufacturers are said to have been making no charge, some granting allowances and some granting none.

William H. Gosch, of the Nolde & Horst Co., chairman of a special committee on fair trade practices, considering more particularly standard sales conditions, told the assembled manufacturers it was expected the committee's report would be approved shortly.

Five field representatives are to visit manufacturers in five zones simultaneously in the move for strict enforcement of the code, some violations having been reported, it was stated by Managing Director Constantine of the National Association of Hosiery Manufacturers. Enforcement is to be started very soon.

The manufacturers are waiting to hear from the National Recovery Administrators on the proposed cost manual for the industry, prepared by Ernst & Ernst, Philadelphia accountants.

The outstanding event of the meeting, at which 70 mills were represented out of a membership of 95, was an address by Arno P. Mowitz, attorney for the association, who spoke against the Wagner Bill. Attorney Mowitz characterized it as an attempt at socializing industry; said it was unfair in the matter of rights and privileges, in that what is demanded for organized labor is denied to employers. He urged employers to study the bill intelligently and line up against its enactment. The association previously had telegraphed its protest against passage of the bill to the Chamber of Commerce of the United States, the National Association of Manufacturers and the National Association of Hosiery Manufacturers.

All the while that manufacturers have been having meetings for discussion of codes, changes, and trade conditions, in the hope of solving the problem as to how to halt the downward course of prices, small dealers have been as busily engaged in establishing shops and offering goods at increasingly low prices. For example, a small shop opened recently offers at 69 cents a pair an apparently very good stocking, and apologizes to shoppers that "this price must be obtained under the NRA." But, it is announced by the shop, irregulars are sold for 49 cents, seconds for 39 and a free mending service is at the disposal of customers.

Short leg stockings in demand—

Hosiery shops report an unfilled demand for short leg stockings for short women, who are calling especially for a 26 inch length. Some of the shops state that manufacturers are not inclined, under existing market conditions, to make a 26 inch stocking, except on order. The shops feel that this length should be carried at all times, as well as 28 and 31 inch lengths.

Speaking of changes in hosiery styles, it would appear from the experiences of some of the more successful manufacturers of full-fashioned numbers, that 48-gauge equipment, although of comparatively recent initial installation, is in increasingly declining favor due to popularity of 45-gauge as a price proposition and 51-gauge as a proven satisfactory stocking in the chiffon group.

Going back to the balmy days when 42-gauge represented a very popular type, it was found that production was hardly sufficient for taking care of increasing demand. The next step was 45-gauge and, for a time, this was regarded in high favor, but because of so little difference in fineness and cost of production, 48-gauge seemed a logical type of machine for producing sheer hosiery. Eventually it developed that, for practical purposes, an attractive sheer stocking could be produced on a 45-gauge machine. The extreme in fine gauge and sheer fabric was coming off of 51- and 54-gauge machines, a few mills having 57- and 60-gauge as two-thread very sheer came to be desired for state occasions. The 48-gauge machine thus was left in a sort of in-between position, if we accept the views of some manufacturers who have not been 100 per cent satisfied with their sales during periods of keen competition. Nevertheless, it is a good type of stocking to talk about and is prized by retailers—when obtainable at radically sacrificial prices—for special sales.

Current exploitations by leading large retailers seldom refer to gauge, finding other descriptive terms perhaps more alluring. The prices for some recent promotion sales have been so low as to cause wonderment among even some of the older and more seasoned buyers for the retail trade.

One of the three distinctively women's specialty shops in Philadelphia a very short time ago made a feature of sheer chiffon and medium service stockings, the former in "fine gauge, sheer, and clear, with double picot top and French heels," at 59 cents a pair. "How can it be done?" asked an old time buyer, of whom it was asked in turn, "Why is it done?" when the better 42-gauge stockings of four-thread silk are costing us $5.25 a dozen minimum—and this is less than actual value—and 45-gauge commands 25 to 50 cents more per dozen. At these prices to the dealer, stockings conforming to the description in the advertisement of the specialty shop offering fine gauge, clear, and sheer for 59 cents may be assumed to cost the dealer still more.

Sears, Roebuck, and Company recently exploited a clear, fine gauge, sheer chiffon at 58 cents as a one day "thriller". This stocking also was described as permanently dull high twist silk, full-fashioned, first quality, and knitted to correct measurements, instead of being boarded to size. Observers of offerings in March promotion sales note that a special price ranged from 59 cents to 79 cents.

Apparently hosiery was being over-produced following the shift from a 24-hour week to a 40-hour week, and there was a speeding up just prior to the 24-hour week becoming effective. It is a question whether the situation is one of over-production or under-consumption, some interests accepting the latter proposal and attribute it to a curtailment in apparel, by the consuming element, in view of

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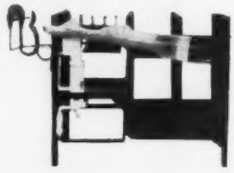

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By actual test it has been learned that only 10% (and that is the minimum) of all stockings are true in foot size when shown to the consumer.

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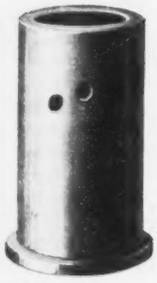
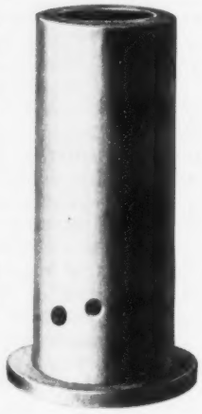


Here are bearings built to match the engineering skill and precision construction of the famous Scott & Williams Model K Machines. MOCCASIN Bronze Bearings relieve the knitter of bearing worries, so important under the quality production demands of the present day.

Our stocks on hand enable us to make prompt shipments. Let us quote you prices.

We also manufacture the famous Moccasin Oil Distributing Bushing and a complete line of brass and bronze bearings, bushings and castings.



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The famous bone-dry, unshrinkable, well finished boards that give universal satisfaction.

Especially recommended for silk and chiffon hosiery. Satisfied users the country over. A list of these users gladly furnished to any mill on request.

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COTTON

ATLANTA, GEORGIA

increasing prices for food stuffs. Accepting either proposal, the fact remains that the market was oversupplied, making comparison with effective demand, in anticipation of a proposed 10 per cent reduction in hours and a 10 per cent increase in the hourly rate of pay.

Until around the middle of March, it appeared a common complaint that the retail trade was not making normal preparations for the Easter trade. Easter falling unusually early was approached with timidity by dealers in holiday finery. Some market observers incline to the belief that the better outlook relates to sports goods, rather than to staples, by reason of the fact that with the shorter hours, there will necessarily be more time for outdoor recreation.

March marketing developments—

During the greater part of March some of the larger mills selling to jobbers and the more important retailing establishments were operating with two shifts, as were many of the smaller mills in the Philadelphia and Reading territory. Reports of a trustworthy character from southern manufacturers were to the effect that most of the full-fashioned mills producing standard types of goods were busily engaged and, in instances, buying in the gray. Manufacturers of women's and men's seamless in the southern field who were encountered on the occasion of their visits to the New York and Philadelphia markets spoke as though very enthusiastic over their volume of spring business, and there was much regret that it seemed probable the work time would be reduced to, at the most, 36 hours a week. This probably would make little difference in prices but for the fact that the wage scale would, presumably, be increased by 10 per cent.

The tabulation of reports of 336 identical manufacturers of hosiery by the Department of Commerce makes it apparent that the hosiery industry entered upon 1934 in a very much stronger position than it presented at the beginning or ending of 1933. This conclusion is reached from a study of production, orders booked, net shipments, and unfilled orders. A dark spot in the compilation is represented in the report as to cancellation in December of last year, amounting to 204,529 dozen pairs. This is mellowed, however, by a decline to 96,385 dozen in January of this year.

A gain of 10 per cent in production of all classes in January over December is not surprising, in view of the fact that during part of December and part of January the industry was working on a 24-hour basis and, therefore, operating at high speed before and after the 24-hour period, for more than making up what apparently was lost in the reduction of hours. Nor is it surprising that the 1934 production in January was 12 per cent less than that of the corresponding month of 1933. Outstanding on the favorable side of the statistics is the showing that unfilled orders in January last were 44.65 per cent greater than in December, and also 51 per cent more than in January of last year. Comparing January of this year with January and December of last year, there were noteworthy increases in orders booked and in net shipments.

Women's cotton full-fashioned increasing—

One of the outstanding showings is that in January, 1934 there were knitted 10,000 dozens of women's full-fashioned cotton hosiery, including mercerized, whereas in the corresponding month of 1933, the production of cotton full-fashioned was less than 700 dozens. It is interesting to note in this connection that in January of this year there was a slight decline in the production of women's silk full-fashioned hosiery from the corresponding month of 1933. Output of women's cotton seamless hosiery in January last appears to have been less than in January, 1933, while in ladies' silk seamless there was an increase in January over the corresponding month of last year and a rather sharp decline in the output of women's rayon.

A broadening interest in cotton underwear was manifest in March while the markets for numbers of textile lines appeared to be halting, during a disturbance in economic conditions, a weakening in wool values, declining prices for worsted and woolen yarns, and a none too stable situation in cotton yarns. Fall and winter weights of women's cotton

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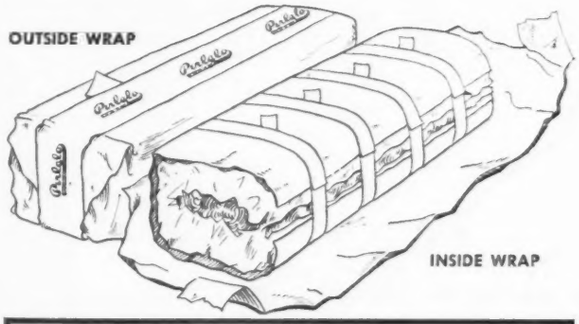

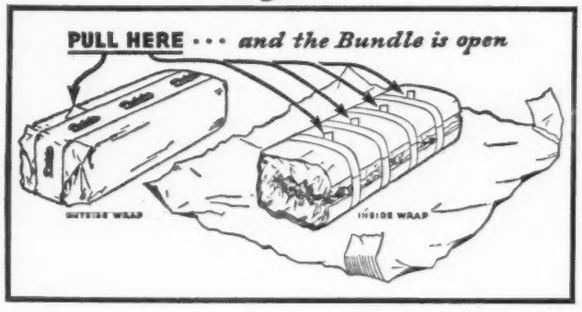

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No strings are used. No knife, scissors or cutting implements are necessary. No more damaged or cut yarn. Just pull the outside flap and off comes the primary wrapping. Then pull the four flaps inside and the skeins are open, ready to use. The bundle is stronger than if tied with twine and every fold and joint is sealed to keep the yarn clean.

All Enka skeins have this patented put-up. You actually save money by using Enka yarn. Mill men who have tried the Enka Sealmatic Bundle are highly enthusiastic. Run a test on Enka and see for yourself.

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underwear were in especially good call for a time, as reported by up-state Pennsylvania mills, where it seemed a better reflex of demand attributable to a desire on the part of jobbers and large retailers to make commitments for fall in advance of any reduction in code work hours and increases in prices was presented.

The underwear markets in March—

Women's cottons were selling for spot and future deliveries, and manufacturers of the better types of garments were having not only a fair number of orders but a well defined indication of plenty of work for employees during the spring and summer. Cottons had been making inroads on sales of several underwear items of rayon construction, and seem this year to have lost none of the ground reported by department stores as having been gained last year. The better situation in women's cottons is indicated in the Department of Commerce tabulation of reports from identical manufacturers for November and December, no report for 1934 being available to the middle of last month.

To get the more cheerful picture it is necessary to make comparisons on light weights, the December output of women's union suits of six pounds and less being given as 116,847 dozens, or almost 20 per cent over November. This production has been having a fairly active market, which is viewed as encouraging for a good volume of business in women's fall and winter weights of cotton underwear. In light weight cottons for children the December gain over November as reported by identical mills was 250 per cent. Men's lightweights, under nine pounds, show an increase of around 12,000 dozens, to 109,548 dozens for December.

Production of men's heavy weight cotton underwear in the closing months of last year was comparatively light, December falling back of November in dozens by more than 32 per cent. Light output at that time seems an explanation for demand in the first quarter of 1934, one mill after another in the major class withdrawing prices while still a considerable element of the jobbing trade was in the market offering business. It was believed in some circles that the National Recovery Administration's refusal to approve a regulation of new equipment installation* may have had some bearing on the tighter situation prevailing in March. In any event, prices were easily maintained, and were not materially influenced by a momentary wobbly market in cotton yarns.

A flurry in men's heavies seems imminent when jobbers come to place duplicate business. While manufacturers found it expedient to either shut down on offerings or increase their prices, buyers for the jobbing trade showed no sign of alarm over a possible tight situation later, and adapted contracting to the stage of retailer interest, making commitments on a conservative basis. In the event that trade indices last month shall prove to have been not exaggerated, there should be considerable late business in heavyweight underwear, and meanwhile a satisfactory market for light weight all year round numbers.

There has been some confusion over prices for men's shorts, attributable to excess production on the probable theory that at the prices quoted all that were being produced would be absorbed. Offerings of three sets of shirts and shorts on a basis of two dollars for the six garments were by no means uncommon until dealers in sections where the volume of transient business usually runs heavy, knocked off enough profit to enable man to acquire the three sets for 25 to 27 cents per garment. This was one division of summer weight underwear for men in which the pace set for fall business was not maintained.

A fairly active market for bathing suits for the 1934 outdoor season was disturbed last month by a threatened strike for a 35-hour week, union recognition and $60 a week for mechanics, this term embracing machine operatives. Other schedules demanded in a formal notice of an intention to walk out unless differences could be harmonized, ranged from $25 to $40 a week.

Whether a minority element of the operatives respond to a strike call or continue at work, the damage to the market was felt in a holding up of orders, while jobbers with order acceptances were asking for rush delivery. Manufacturers seemed less concerned than the jobbers, few treating the strike warning seriously, and numbers declaring that to hold out for $60 a week would result in a closing of plants, on the ground most jobbers would refuse to cover in advance for their summer requirements if prices were moved higher.

Probably the more important factor in the momentary slowing down on orders was an easing in prices for worsted yarns, for which Philadelphia is a large consumer, in the knitting trades. Two leading spinners in the Philadelphia sector were among the first to offer yarns at a reduction of five to 10 cents a pound after reports became general that wool values had weakened following the action of the War Department in cancelling bids for 947,000 blankets for the army for which almost 5,000,000 pounds of wool would be required. Cancellation of the bids followed the date when they were opened by the Philadelphia quartermaster, by four days. The leaving of so much wool to be disposed of civilian uses at the dawn of the shearing season obviously staggered the wool and woolen and worsted yarn trades, a reflex of which was jobber withdrawal from the goods markets, for the time, as usually happens at the commencement of a decline in values.

Manufacturers contemplating a 10 per cent reduction in work time to 36 hours per week and a 10 per cent increase in the wage rate per hour stated that suits intended to reach the consuming public at slightly less than $3 apiece would be advanced in retail prices by one dollar. This may have been an exaggeration, and may so prove in the event worsted yarns do fall to a price level predicted by some in the trade. Spinners carried very heavy weights of weaving and knitting yarns over from the 1933 low price period, during which, it transpires, numbers of knitting mills laid by enough yarn to meet their requirements until a few weeks.

Sweaters had been coming along in fairly good fashion. Trading in this division need not suffer to any extent in the event of a decline in yarns, as mills have been shipping out their production as fast as orders were filled. Large distributors in national territory state there has been good distribution of sweaters in the South, and that demands still continues. Mixtures of cotton and rayon are being used more extensively in sweaters this season than in any recent year, some so-called worsted or woolen yarn containing less than 20 per cent of wool. There are enough unfilled orders for sweaters in manufacturers' files to keep plants well engaged through May, assuming that the yarn market will speedily recover its balance and the strike threats disappear.

Old-Timer Short Shots

We have had depressions before, and my experience has been that they have always developed some outstanding overseers and superintendents. What have you been able to do with yourself during the present depression? Have you done something which, when times get better, will make your employer realize that you were a valuable man when he needed a valuable man?

* * *

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REVIEW OF THE YARN MARKET

Philadelphia, March 21, 1934.

COTTON yarns have been undergoing a see-sawing in matter of price and by the middle of March appeared not to be in quite so strong a position as, at times, earlier in the year. Fluctuations in raw cotton undoubtedly had less influence on the prices of yarns than uncertainty as to economic conditions in the near future. In other words, the question of increasing or diminishing employment and shorter hours with increased pay per hour played a conspicuous part in the ups and downs in demand which, after all, go further toward regulating prices than forecasts by economists.

It has been demonstrated that yarn consumers are little inclined to give heed to prospects of shorter work weeks and presumably increasing prices, as indicated by a general disposition to buy only for known requirements. This conforms to statements by some very close observers, who point to the fact that during the mid-March period there was evidence of considerable slowing down in interest, even in knitting yarns, although some of the underwear mills were reporting a substantial volume of business in women's and children's Fall weights, men's heavies having been pretty well contracted for by the beginning of March.

Prices developed unsteadiness with intimations of labor disturbance in some of the major industries which are large consumers of cotton and maintain enormous pay rolls. Quotations declined by one or more cents per pound in the carded group between the 10th and the 15th of March. This was particularly brought out in a mark down to 31 cents for two-ply warps and 28½ cents for single carded on cones.

Notwithstanding the attitude of manufacturers in doing so little buying for anticipation, the Philadelphia yarn trade looks for some fairly brisk business during the Spring, but have raised the question "Why not find new uses for cotton instead of destroying a part of the crop, since it is possible that the manufacturing and consuming public will sometime rue the day that every third row was plowed under?"

As a matter of fact, it can be claimed that the consumption of cotton this year to the end of the first quarter will be greater because of sustained relatively high prices for wool. For example, a line of cotton sweaters is selling to distributors at the price of last year's worsted sweaters. There has been more mixture of wool and cotton than in some years, cotton being used even in bathing suits to a greater extent than ordinarily for meeting the ideas of dealers who buy for price and don't care what happens to the consumer.

As in recent months, knitting yarns have been in better movement than weaving numbers, and new business was in fairly good volume until near the middle of March. Shipments against old contracts for knitting yarns have continued in good volume, while weaving numbers show little, if any, improvement. Even carpet yarns have been slow, despite increased cost of carpet wools which, of the better types have, this year, entered more largely than usual in the manufacture of men's and women's woolens. However, the Philadelphia yarn trade finds that spinners have materially reduced their stocks although, presumably, approaching a shorter week, and are not adding to their reserves for taking care of the business that may be offered by buyers who fail to take into consideration a possibility of increasing prices.

Manufacturers bidding on contracts for Government and CWA supplies sought to induce the yarn trade to quote subject to a ten days' option. It is understood that few, if any, yielded to such a request at the dawn of what was regarded a rising market.

Combed yarns have been in feeble demand and, latterly, prices appeared to be softening, with 30s singles quoted around 42 cents—subject to a shading—and 38s around 47 cents and 48 cents. Mercerizing interests agree that it was very difficult to speak definitely as to prices, while quoting on the basis of 73 cents to 75 cents for mercerized two-ply combed peeler.

Philadelphia prices published March 22, follow:

Single Carded Skeins

10s	29	12s	29½
14s	30	16s	30½
20s	32	24s	34
26s	35	30s	39

Single Carded Warps

10s	29½	12s	30
14s	30½	16s	31
20s	32½	26s	35½
30s	37½		

2-Ply Carded Skeins

10s	29½	12s	30
14s	30½	16s	31
20s	32½	24s	34½
26s	35½	30s	37½
40s	43½		

2-Ply Carded Warps

10s	30	12s	30½
14s	31	16s	31½
20s	33	24s	35
26s	36	30s	38
40s	44		

CARDED KNITTING YARN ON CONES

(These quotations are on net weight).

Ordinary Quality

10s	29½	12s	30
14s	30½	16s	31
18s	31½	20s	32½
22s	33½	24s	34½
26s	35½	30s	37½
40s	44	30s tying in	36

Double Carded Grade

10s	31	12s	31½
14s	32	16s	32½
18s	33	20s	34
22s	35	24s	36
26s	38	30s	39
40s	45		

Carpet Yarns

8s and 9s white warp twist	28
8s tinged tubes	27
8s part waste	25½

Two-Ply Combed Skeins and Warps

16s	40½	20s	42½
24s	43½	30s	47½
40s	51½	50s	57½
60s	62½	70s	72½
80s	82½		

Single Combed on Cones

10s	36	12s	36½
14s	37	16s	37½
18s	38½	20s	39½
24s	41½	26s	42½
30s	44½	36s	47½
38s	48½	40s	49½
50s	54½	60s	61½
70s	71½	80s	81½

Table from "Daily News Record".

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4

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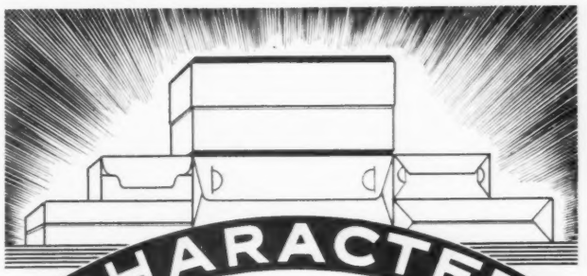

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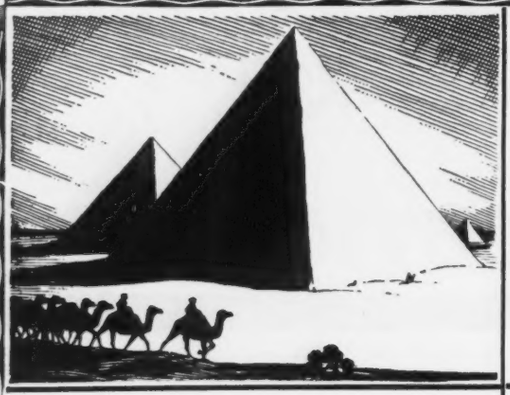

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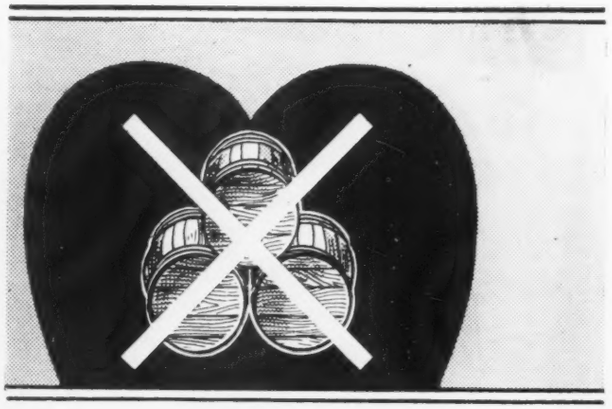

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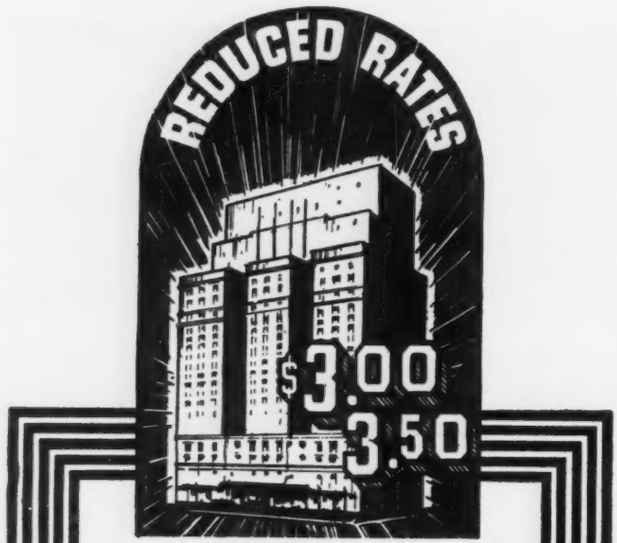

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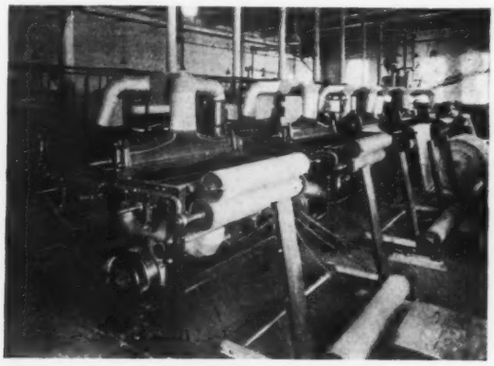

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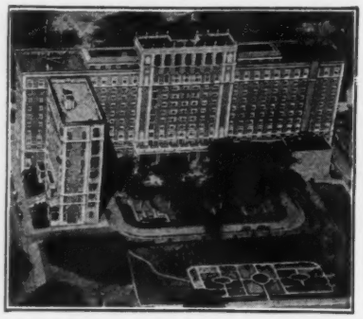
All executives, their associates, department heads and operatives both north and south are invited to attend. There will be interesting conventions and group meetings. Special railroad rates will be available.

Modern machinery, installations, accessories, and supplies are required for quantity and quality production. Our show affords the quickest and most satisfactory method of introducing new equipment on the market, and at a lower cost than any other plan that could be adopted. Properly organized and directed exhibitions are the most effective means of advertising. The exhibitor renews old acquaintances, and gains new customers by showing his wares and explaining their merit. When a visitor stops to look at the exhibit and listen to an explanation of its advantages, the sale is half made.

We shall be glad to give full details of the show upon request.

Address

TEXTILE HALL, GREENVILLE, S. C.



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"The South's Supreme Hotel"

Value
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PHILADELPHIA

600 ROOMS AND BATHS

A Room and a Bath For Two and a Half

$2.50 *Single with Bath*
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HOTEL
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39th & CHESTNUT Sts., PHILADELPHIA

Give Your V-Belts The Proper Start For a Long Life

The proper start in life for a V-Belt is on well-balanced, strong and true-running sheaves, with grooves uniform and accurately turned.

Regardless of the make of V-Belts you use, you can lengthen their life by the use of

GOLDENS' V-BELT SHEAVES

LICENSED UNDER ALLIS-CHALMERS PATENT No. 1,662,511

50 years experience in transmission equipment manufacture is back of them. Five different arm patterns — light, medium, heavy and double-heavy — with thousands of different hub patterns, enable us to supply the most efficient sheave for each particular installation.

Scores of leading mills will vouch for the superiority of Goldens' Sheaves. May we send you prices? Drop us a line today.

Goldens' Foundry & Machine Co., COLUMBUS, GA.

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Pillow Blocks
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"IT INCREASED OUR TWISTER PRODUCTION 35 PER CENT"

Auto-lubricated Ring establishes new record on ply yarns

Production gains of as high as 35% are reported by cotton mills using DIAMOND FINISH Auto-lubricated Rings, made under the Eadie patents. Thread mills find it easy to step up production 20% per spindle hour and get a larger package as well. Incidental gains are greater uniformity of twist, longer life of travelers, lessened cost of lubricant.

One reason for this record-establishing efficiency is that these rings are automatically lubricated ALL AROUND the circumference with an oil of ideal viscosity.

WHITINSVILLE (MASS.) SPINNING RING CO.

Makers of Spinning and DIAMOND FINISH *Twister Rings since 1873*

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UNDISPLAYED

Advertisements set "Want ad" style. Positions wanted .05 word per insertion. Minimum charge $1.00 per insertion. Cash with order. All other classifications .10 word per insertion. Minimum charge $2.00 per insertion. Advertisements of equipment, for sale, rent or wanted and professional cards are accepted at display rate only.

Box number addresses care of COTTON, Grant Bldg., Atlanta, Ga., count as eight words.

PART TIME SUPERINTENDENT DESIRED

Wanted semi-retired mill superintendent for part time work, in Georgia yarn mill. Experience on colored work desirable. Will require few hours per day of his time, and mill is located in healthy, delightful community. Address Box 117, care COTTON, Grant Bldg., Atlanta, Ga.

Salesman Wanted

for Dyes, Sulphonated and Saponified Oils, Sizes, Softening and Finishing Material. Experience and following. Good position for the right man. State qualifications and Salary expected. Address Box 115, c/o COTTON, Grant Bldg., Atlanta, Ga.

POSITION OPEN

The Brooks Oil Company desire experienced boiler room specialty salesmen to cover two established territories selling Brooks Improved Boiler Metal Treatment and other products. Only well qualified and recommended need apply. Must have automobile. Drawing account and high commission. Excellent opportunity for the right men. State full experience and references. Address Brooks Oil Company, Cleveland, Ohio

SALE

Surplus machinery, good as new, including RODNEY HUNT DYEING MACHINES, Dryers, Tigers, Shears, Brushes, Presses, Embossing Machines, Shafting, Pulleys, Belts, Power Plant Equipment, Splitters; in fact almost anything required in a Pile-Fabric Mill. Collins & Aikman Corp., Manayunk, Philadelphia, Pa.

FOR SALE

Seventeen (17) Type H. Bahnson Humidifiers, one (1) Bahnson Master Control, approximately four hundred feet (400') of one inch (1") main piping, approximately four hundred feet (400') of one and one-quarter inch (1¼") return piping together with necessary connections.

If interested, please communicate with Box No. 116 in care of COTTON, Grant Bldg., Atlanta, Ga.

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Repairers of
SPINDLES--FLYERS--STEEL ROLLS

SPINNNING SPINDLE WHORLS RE-CUT
SPINNING STANDS REAMED
DRAWING ROLLS RE-COLLARED

"Cotton Mill Machinery Calculations"

EVERY Textile Man should have these reference books. They cover in a detailed and thorough manner all calculations necessary to be made on any cotton mill machinery manufactured in the United States and constitute one of the best references on the subject obtainable. The two volumes are illustrated with 45 diagrams and contain 21 reference tables. Strong, serviceable binding. Given in conjunction with a two-year subscription to COTTON.

Your Advertisement In This Section—

HAVE you some equipment, new or second hand, which you wish to dispose of; do you desire a good man to fill a vacancy in your mill; do you desire a position; do you desire your business or professional card placed before the textile industry?

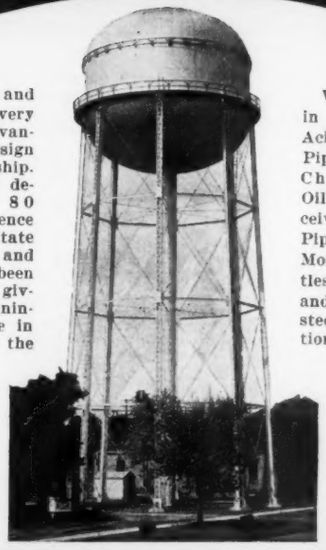
Then, why not try an advertisement in this section of COTTON? With its 10,000 copies per month, COTTON has the largest net paid circulation of any journal in the textile field. It reaches the active executives and managers, superintendents, heads of departments and master mechanics, the men directly in charge of the mill and its various departments and the men who buy or dictate the buying of machinery, equipment and supplies

Advertising in this section produces results at small cost. Note the rates at the top of this page and tell us what you wish to advertise

COTTON

GRANT BLDG. ATLANTA, GA.

COLE
TANKS TOWERS



Cole Tanks and Towers offer very distinctive advantages in both design and workmanship. They have been developed over 80 years of experience to the highest state of efficiency and hundreds have been erected and are giving perfect, uninterrupted service in every section of the country.

We also specialize in Boilers, Kiers, Acid Tanks, Stand Pipes, Smoke Stacks, Chemical Vessels, Oil Tanks, Air Receivers, Welded Pipes and Tanks, Monel Tanks, Kettles, Storage Bins and other forms of steel plate construction.

Our Engineering Department will be glad to cooperate and submit designs to meet any requirement.

Let us quote you prices when you are in the market for tanks, towers or other steel products.

R.D.COLE MANUFACTURING CO.
NEWNAN EST. 1854 GEORGIA
FABRICATORS OF STEEL AND ALLOY STEEL PLATE

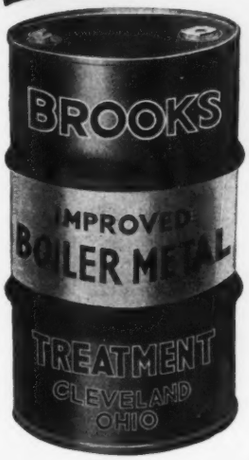
Is Your Boiler Wasting 1 Out of Every 4 Tons of Coal You Buy?

Write for Details of Sixty Day Offer

Government tests show that only ⅛ inch of scale inside a boiler wastes 25% of the fuel consumed by it.

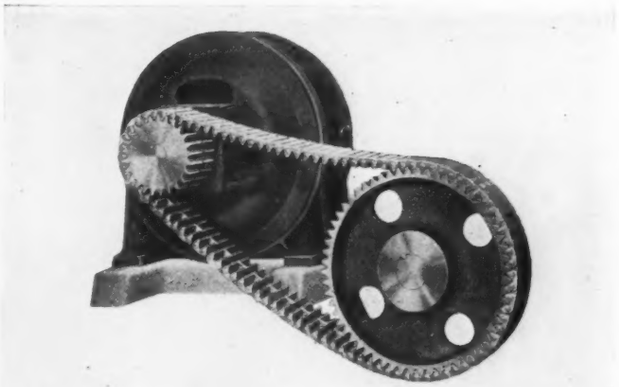
Brooks Improved Boiler Metal Treatment not only removes every particle of scale but permanently prevents the formation of new scale. Because neither caustics nor acids are used, Brooks Improved Boiler Metal Treatment will not pit or corrode the metal of the boilers or the pipes, thus insuring against costly repair bills. No odor or impurity is imparted to the steam to interfere with processes using live steam.

Brooks Improved Boiler Metal Treatment has been the standard of discriminating engineers for forty years.

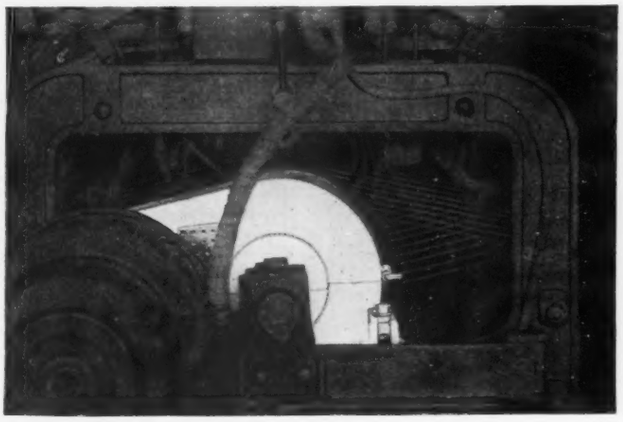


NRA THE BROOKS OIL COMPANY
Cleveland, Ohio

Drive it with LINK-BELT SILENT CHAIN



LINK-BELT Silent Chain continues to be the most efficient, economical, durable, flexible, positive drive on the market . . . It does not waste power or spoil the product through drive slippage . . . It is automatically lubricated (in our new TEX-TIL Oil-Leak-Proof Casing), and is cool running. Send today for Data Book 125, and Pink List 725 of complete stock drives.



Link-Belt Silent Chain Drive operating in Automatic-Lubricating, oil-leak-proof Link-Belt TEX-TIL Casing

4951

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THIS Veeder-Root PICK COUNTER *led the parade*

Twenty-six years ago, Veeder-Root designed, built and installed the *first* pick counter . . . and it is still giving satisfactory performance. From this beginning, the parade of pick counters started. Many generations of Veeder-Root pick counters have followed . . . each one better than the last . . . for every important development and improvement in pick counters has been made by Veeder-Root engineers . . . just as Veeder-Root engineers will originate future improvements.

Today, more than 350,000 Veeder-Root Pick Counters are proving profitable investments on looms throughout the world. And the parade is growing. Evidence enough that it pays to continue to build the best. Let us show you the new and improved 1934 models upon which patents are pending.

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HARTFORD, CONN. GREENVILLE, S. C.

BUILDERS OF COUNTING DEVICES SINCE 1878

Whiter **WHITES...** *Clearer* **TINTS...**

Finer

PRINTS!

Flowered patterns—on Weighted Silk, on Rayon. or Cotton, and mixtures as they come—

But *whatever* the motif—"DISCOLITE" and WHITER WHITES brighten the printer's output. Clean, clear, sharp-cut figures indicate "DISCOLITE"—the iron-free discharging agent.

You've not experienced the equal of "DISCOLITE" for free, even running and scratchless printing.

"DISCOLITE" has proven—season upon season—it has *just what it takes* to produce WHITEST WHITES and the Quality work that brings swift demand in the fabric market.

● *Buy* "DISCOLITE" *in Powder . . or in Lumps*

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